ORDER NO. AD9802019C8

Service Manual

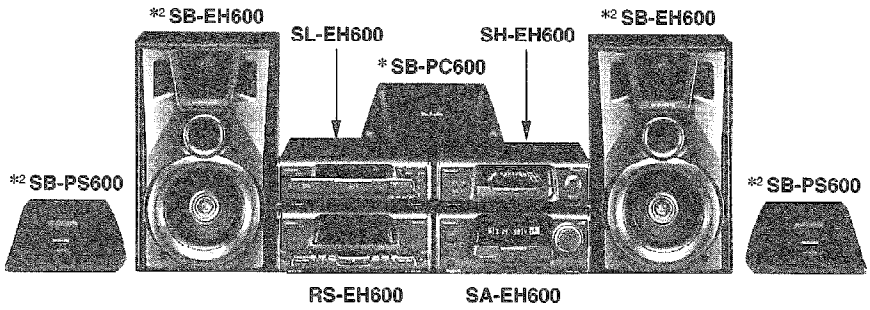
CD Changer

Compact Disc Player

SL-EH600

COMPACT disc DIGITAL AUDIO

MASH*1 multi-stage noise shaping



Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Colour

(H) ..... Gray Type

Area

(E) ..... Europe, Russia, Asia, Latin America, Middle East, Africa, New Zealand and Australia.

System	SC-EH600
Sound Processor	SH-EH600
Tuner / Amplifier	SA-EH600
CD Changer	**SL-EH600**
Cassette Deck	RS-EH600
Front Speakers*2	SB-EH600
Center Speaker*2	SB-PC600
Surround Speakers*2	SB-PS600

*1 : MASH is a trademark of NTT
*2 : Made in PAES

RAE0152Z MECHANISM SERIES

Specifications

Audio Section

No. of channels :	2 (left and right, stereo)
Wow and flutter :	Below measurable limit
Digital filter :	8 fs
DA converter :	1 bit DAC MASH

Pickup Section

Wavelength :	780 nm

General

Dimensions :	287(W) × 89(H) × 336(D) mm
Weight :	2.4 kg

Notes : Specifications are subject to change without notice. Weight and dimensions are approximate.

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

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NOTE:

Refer to the service manual for Model No. SA-EH600 for information on "Accessories", "Connections", "Installation" , and "Packaging".

CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body. So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To protect the laser diode against electrostatic breakdown, short the flexible board (FFC board) with a clip or similar object.
3. Take care not to apply excessive stress to the flexible board (FFC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

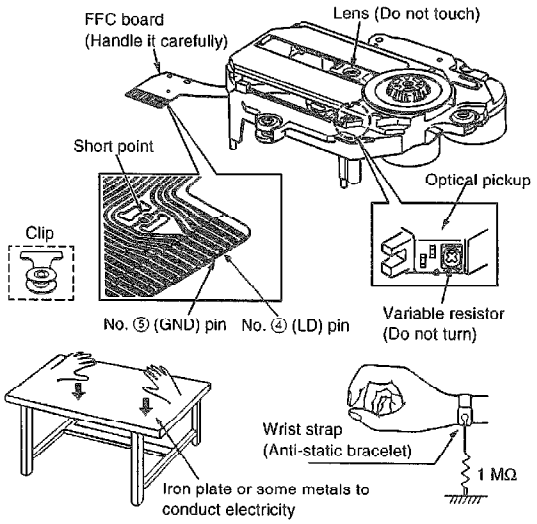
• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conducive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

Caution when Replacing the Traverse Deck:

The traverse deck has a short point shorted with solder to protect the laser diode against electrostatic breakdown. Be sure to remove the solder from the short point before making connections.



Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 µW/VDE

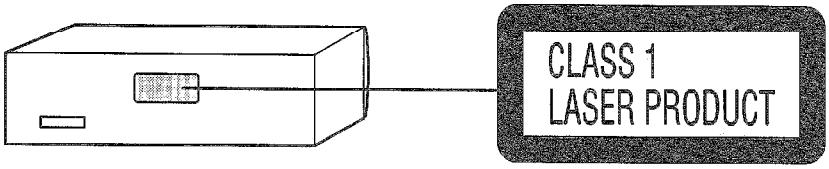
Laser radiation from the pick up unit is safety level, but be sure the followings:

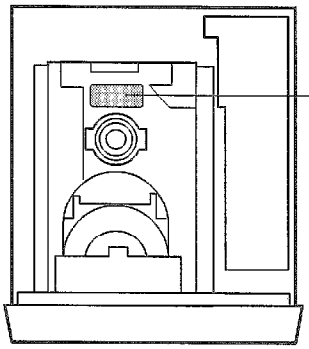
1. Do not disassemble the pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not lock at the focus lens using optical instruments.
4. Recommend not to lock at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit adgestrahit.
Wellenlänge: 780 nm
Maximale strahlungsleistung der laserinhelt: 100 µW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

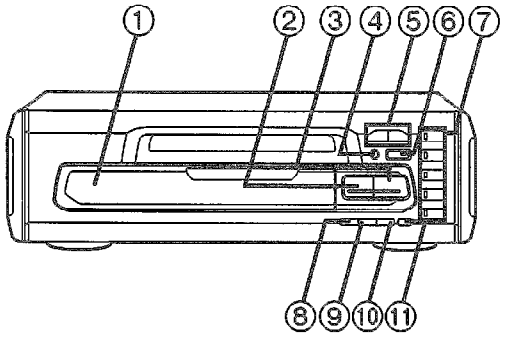
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefähriich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.





DANGER	INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.	(Inside of product)
ADVARSEL	USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.	(Indersiden at apparatet)
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.	(Tuotteen sisällä)
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STARÅLEN.	(Apparatens insida)
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.	(Produktets innside)
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.	(Im Inneren des Gerätes)

■ Location of Controls



① Disc tray
② Stop button (■)
③ Play button and indicator (▷)
④ Pause button (❚❚)
⑤ Skip/search buttons (|◀◀/◀◀ , ▶▶/▶▶|)
⑥ Disc tray open/close button (⏏ , OPEN/CLOSE)
⑦ Disc select buttons and indicators (DISC, 1–5)
⑧ Random play button (RANDOM)
⑨ Repeat button (REPEAT)
⑩ AI edit button (AI EDIT)
⑪ Disc check button (⏏ NEXT OPEN)

■ How to Set the "Shipping Mode"

When the alignment of the unit is finished, please make sure to set it to the "Shipping Mode" as following procedures;

1. Take all CDs out from the unit.
2. With pressing the STOP key for more than 6 seconds.
   The traverse unit is lifted up to the top place, and all the disc trays are fixed automatically.
3. Turn the unit off.

NOTE:

The next time the unit is turned on, the "Shipping Mode" is automatically cancelled.

Operation Checks and Main Component Replacement Procedures

NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

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CD Changer Disassembly / Reassembly page.

1. Removal for the CD changer unit. ..... 4,5.
2. Removal for the traverse unit. ..... 6.
3. Disassembly for the CD changer unit. ..... 6,7.
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5. Inspection for the CD changer unit. ..... 11.

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2. Checking for the operation P.C.B.. ..... 12,13.
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Main Component Replacement Procedures

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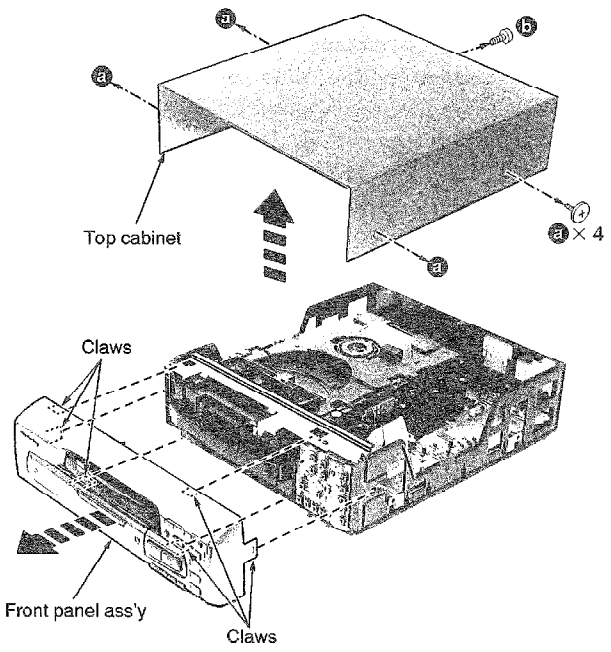
CD Changer Disassembly / Reassembly

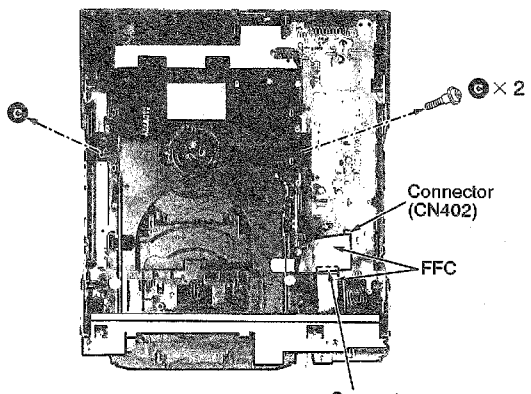
1. Removal for the CD changer unit



Step 1 Remove the 5 screws.

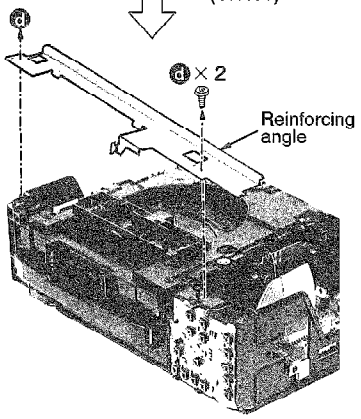
Step 2 Remove the top cabinet.

Step 3 Release the 6 claws, and then remove the front panel ass'y.



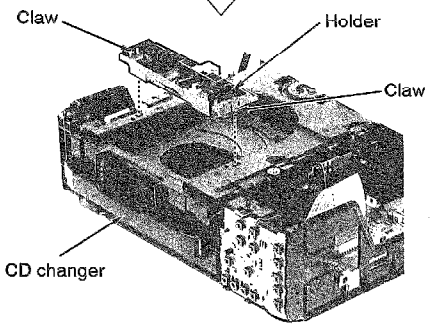
Step 4 Pull out the FFC (2 points).

Step 5 Remove the 2 screws.

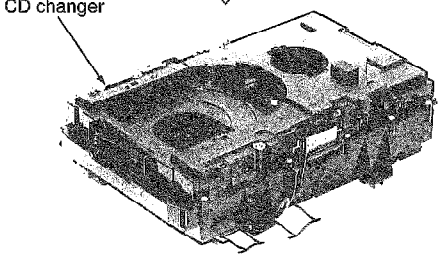


Step 6 Remove the 2 screws.

Step 7 Remove the reinforcing angle.



Step 8 Release the 2 claws, and then remove the holder.

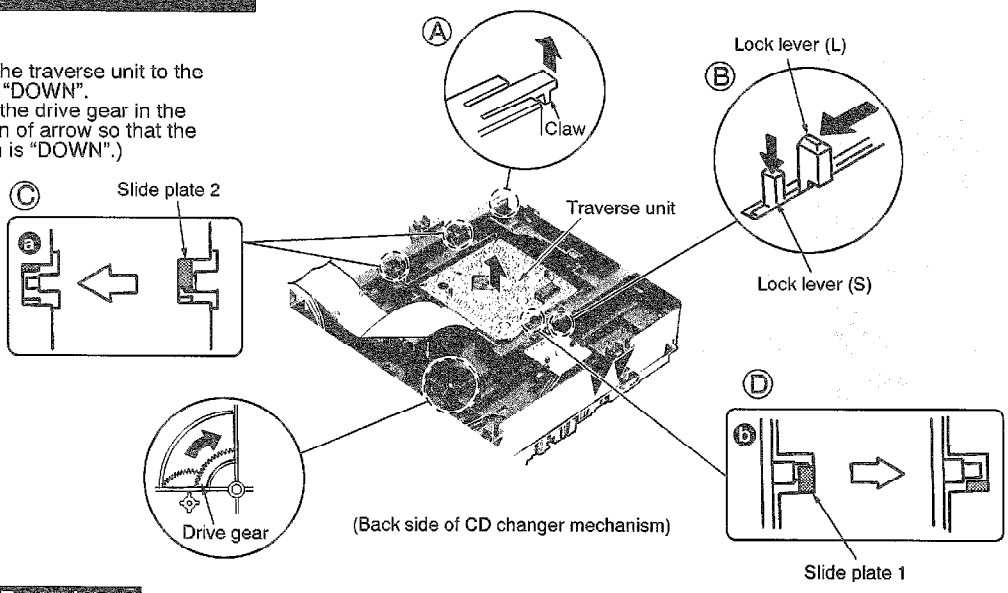


The CD changer unit will be removed.

2. Removal for the traverse unit

NOTE

Locate the traverse unit to the position "DOWN".
(Rotate the drive gear in the direction of arrow so that the position is "DOWN".)



Procedures

Step 1 Push the lock lever (S) with lifting the claw, and then push the lock lever (L) in the direction of arrow (➡).

Refer to the figures Ⓐ and Ⓑ.

Step 2 The slide plate 1 and 2 of traverse retain boss ⓐ and ⓑ are open.

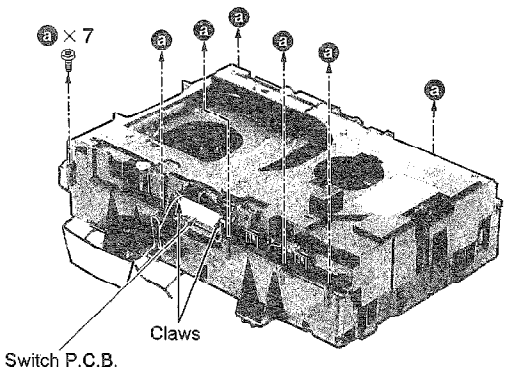
Refer to the figures Ⓒ and Ⓓ.

Step 3 Pull the traverse unit in the direction of arrow (➡).

(The FFC is connected.)

Step 4 The traverse unit will be removed.

3. Disassembly for the CD changer unit

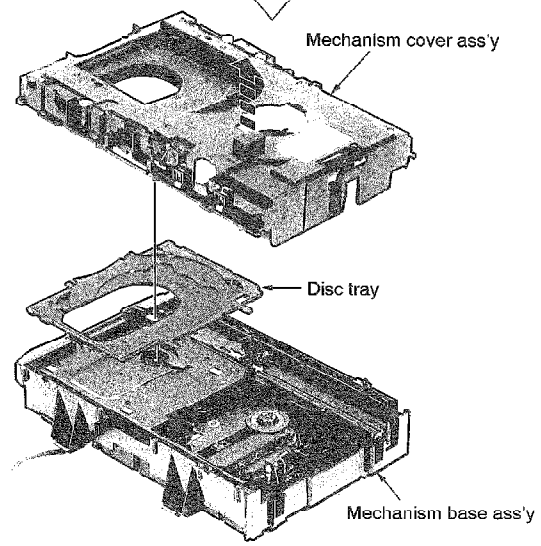


NOTE

Locate the traverse unit to the position "DOWN".

Step 1 Release the 2 claws, and then remove the switch P.C.B..

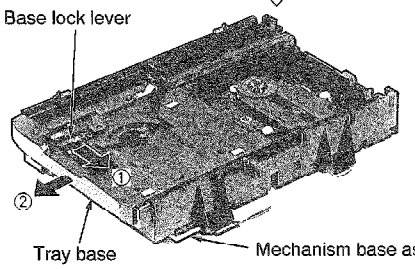
Step 2 Remove the 7 screws.



Step 3 Remove the mechanism cover ass'y.

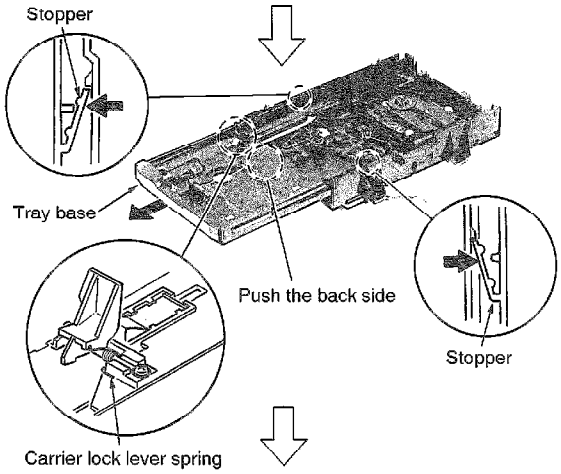
! 4 disc trays contacted to the mechanism cover ass'y will be removed.
1 disc tray is removed to the mechanism base ass'y.

Step 4 Remove the disc tray sided mechanism base ass'y.



Step 5 Unlock the base lock lever.

Step 6 Draw the tray base until it will be stopped.

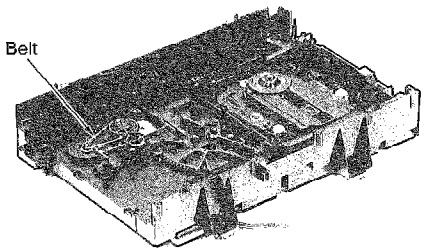


Step 7 Release the stopper manually.

Step 8 Draw the tray base.

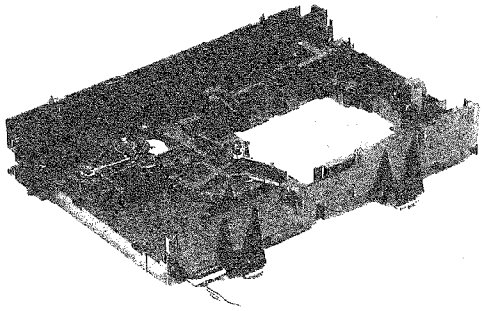
! In case that the tray base can not be open due to hooking, draw the tray base with finger pressing the back side indicated by ◌ of base. (Take care handling of stopper.)

! Take care not avoid the carrier lock lever spring.

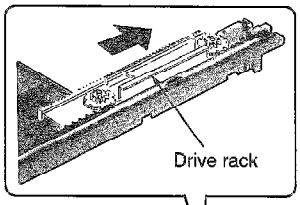


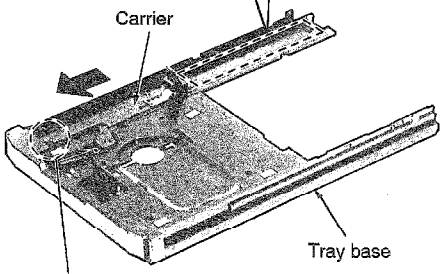
The belt and each part can be replaced after above procedures are performed.

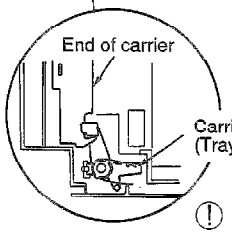
4. Reassembly for the CD changer unit



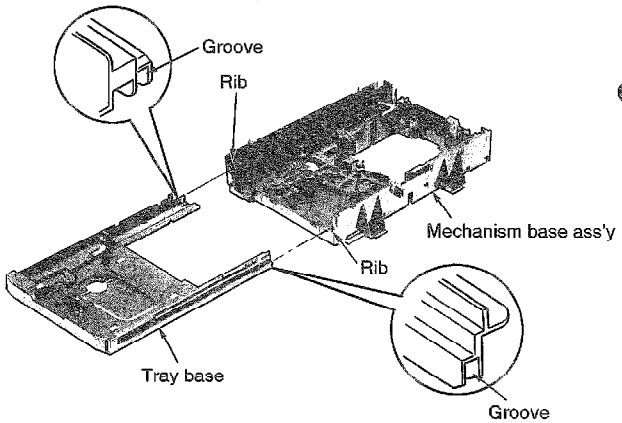
[Back side]







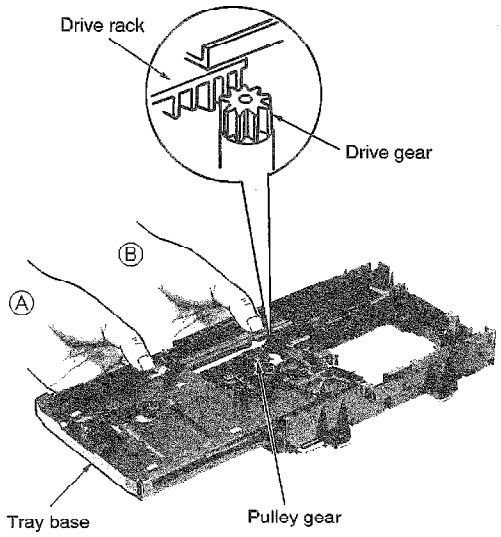
! Lock the lever.



Step 1 Pull the drive rack in the direction of arrow (➡) fully.

Step 2 Slide the carrier in the direction of arrow (➡).

Step 3 Insert the tray base to the mechanism base ass'y with keeping the procedures Step 1 and Step 2 .

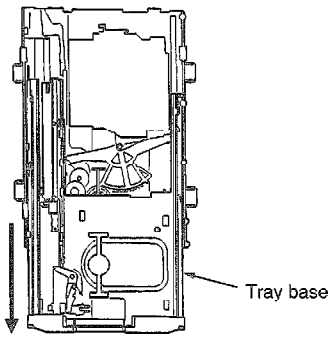


Step 4 ◉ Insert the drive rack until the driver rack interferes with the drive gear.

Position Ⓐ

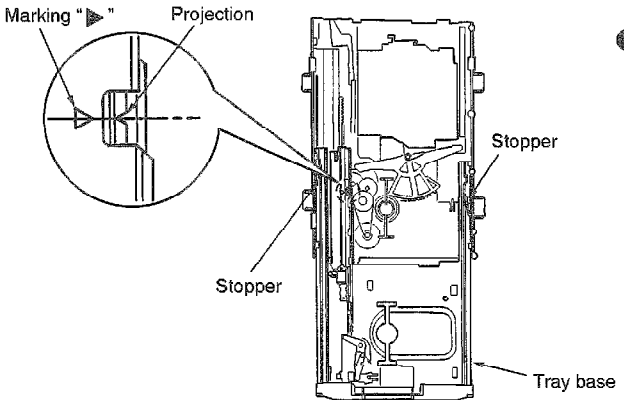
Step 5 ◉ Rotate the pulley gear clockwise gently by hand (5 or 6 times).

ⓘ When the gear begins to rotate, rotate the pulley gear with finger pressure (position Ⓑ) because the drive rack gear will fall free.



Step 6 Allow the tray base be open manually.

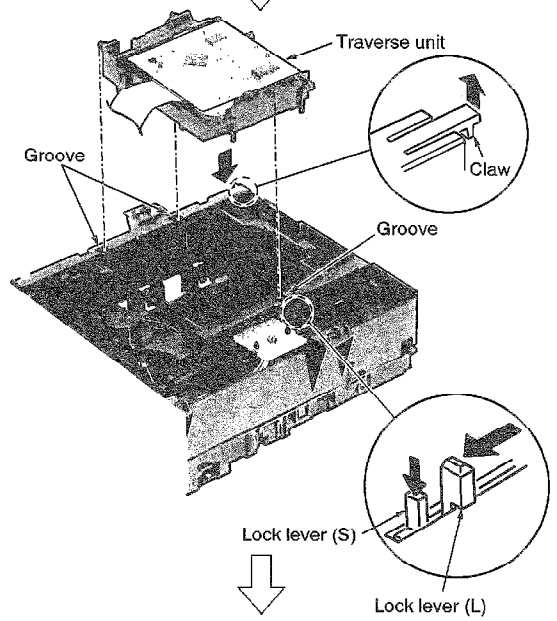
※ Draw the inserted tray base forward.



Step 7 Locate the projection at the marking "▶" as shown left.

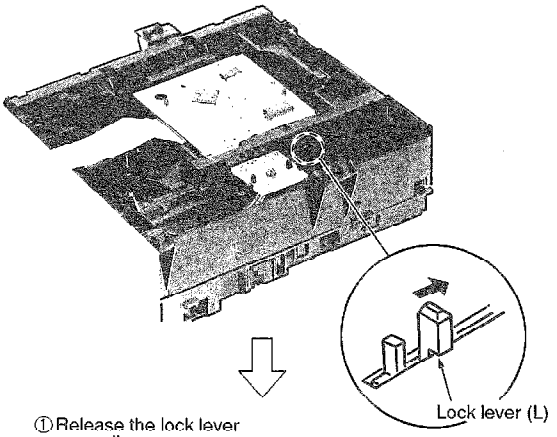
ⓘ In case that the stated above is not operated draw the tray base again.
(Refer to item ⓘ on page 7)

(Retry the item marked with ◉)



Step 8 While lifting the claw upward, press the lock lever (L) with forcing the lock lever (S).

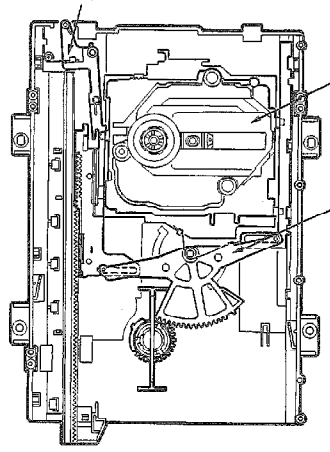
Step 9 Align the boss of traverse unit with the groove of mechanism base ass'y.



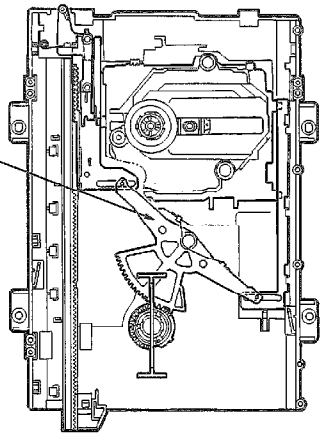
Step 10 Pull the lock lever (L) in the direction of arrow (➡).

After assembly, confirm the traverse unit operation.

①Release the lock lever manually.

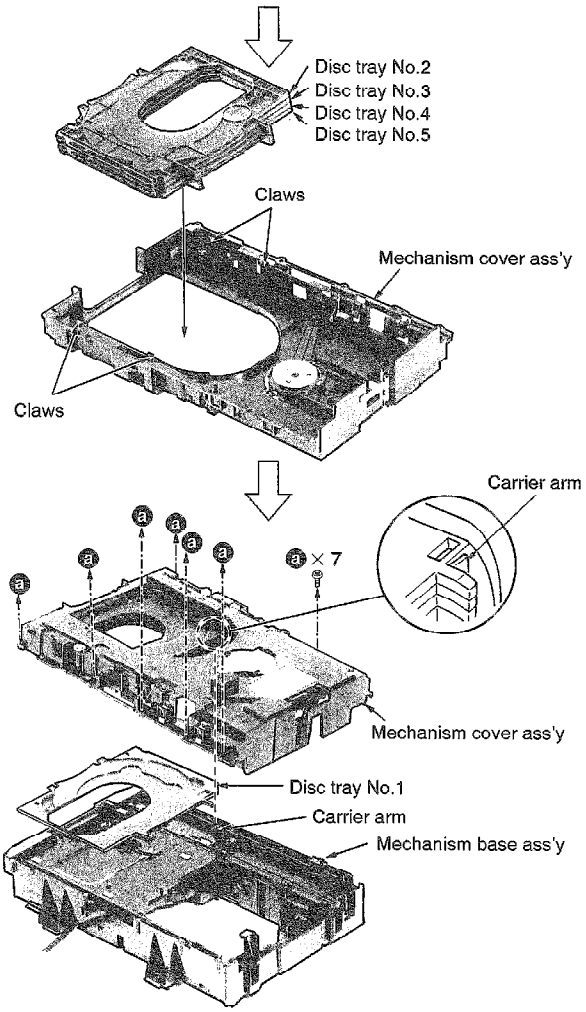


②Rotate the conversion lever manually.



〈"DOWN"stated〉

〈"UP"stated〉



Step 11 Install the 4 disc trays to the mechanism cover ass'y. (Allow them to lock with claws.)

ⓘ Install the disc trays in specific order. (Disc tray No. is indicated on the tray.)

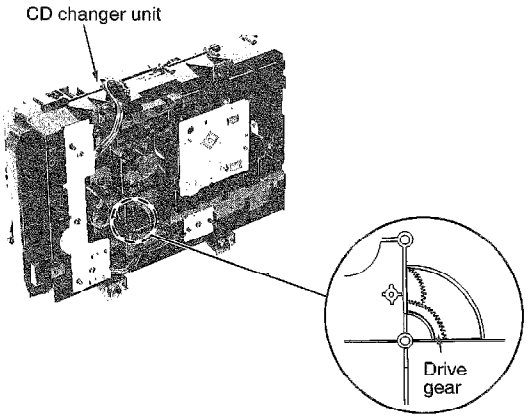
Step 12 Place the disc tray No.1 on the mechanism base ass'y.

Step 13 Install the mechanism cover ass'y.

ⓘ The carrier arm is positioned as shown left.

5. Inspection for CD changer unit

- Begin the inspections in condition that the traverse is kept from disc tray. (5 disc trays in the store compartment.)



※ Manual operations

① Rotate the drive gear counterclockwise manually.

The traverse runs over the disc tray, and rises at maximum level.

② Rotate the drive gear clockwise manually.

The disc tray moves and is stored in upper compartment.

The tray base is open.

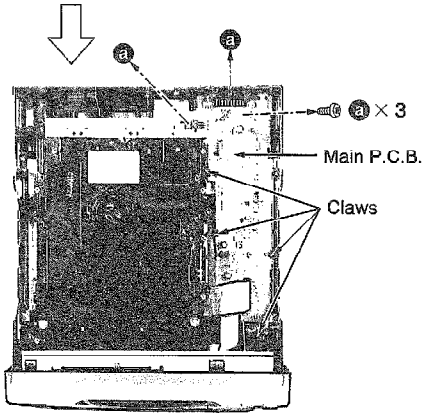
③ Again rotate the drive gear counterclockwise manually.

The tray base is closed, and then it returns to start position.

Checking Procedures for each P.C.B.

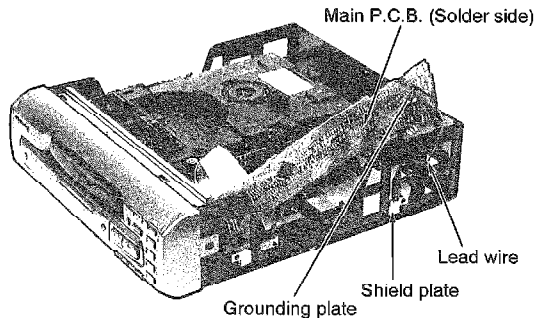
1. Checking for the main P.C.B.

Perform the items Step 1 and Step 2 for CD changer unit removal (Refer to page 4.)



Step 1 Remove the 3 screws.

Step 2 Remove the 4 claws, and then stand the main P.C.B..

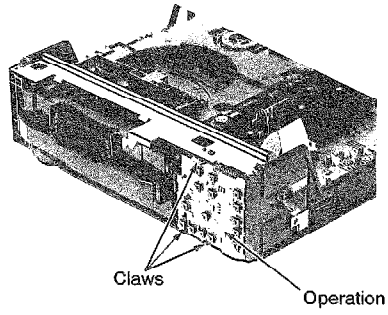


Step 3 Connect the lead wire between the grounding plate and shield plate.

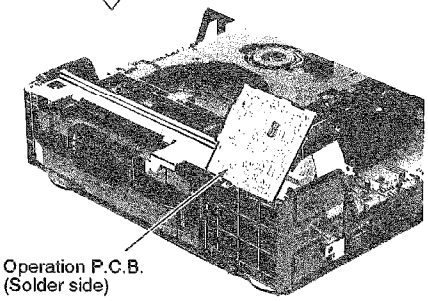
Check the main P.C.B. (solder side) as shown left.

2. Checking for the operation P.C.B.

Perform the items Step 1 ~ Step 3 for CD changer unit removal (Refer to page 4.)



Step 1 Release the 3 claws, and then upset the operation P.C.B..

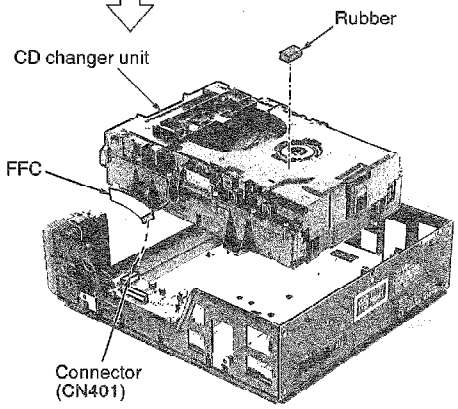


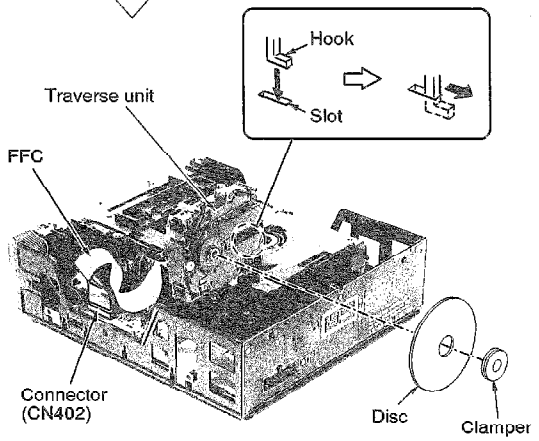
Check the operation P.C.B. (solder side) as shown left.

3. Checking for the CD servo P.C.B.

Perform the items Step 1 ~ Step 7 for CD changer unit removal (Refer to pages 4 and 5.)

Perform the items Step 1 ~ Step 4 for traverse unit removal (Refer to page 6.)





Step 1 Install the CD changer unit to the set.

ⓘ Screw tighten is not necessary.

Step 2 Connect the FFC to the connector (CN401).

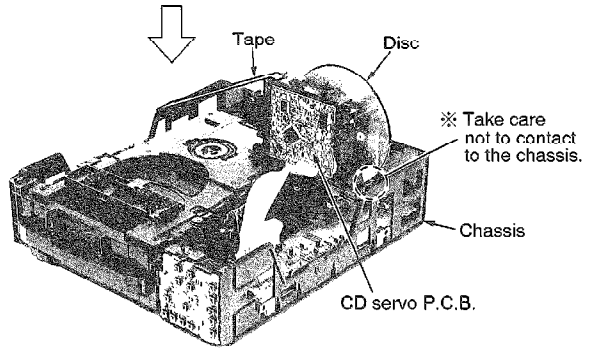
Step 3 Remove the rubber.

Step 4 Align the hook of traverse unit with the slot, and then stand it.

Step 5 Attach the disc and clamper with magnet to the traverse unit.

ⓘ Prepare the clamper used ordinaly.

Step 6 Connect the FFC to the connector (CN402).



Step 7 Apply the tape between the chassis and traverse unit not to contact the disc with chassis.

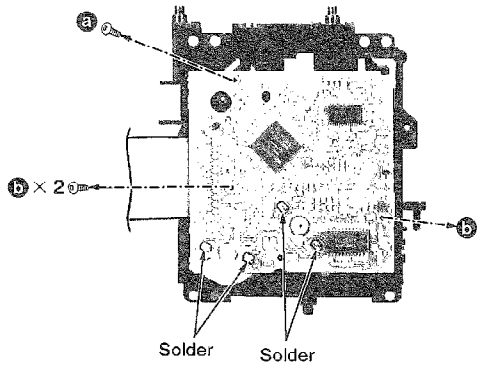
Check the CD servo P.C.B. (solder side) as shown left.

Main Component Replacement Procedures

1. Replacement for the traverse deck ass'y

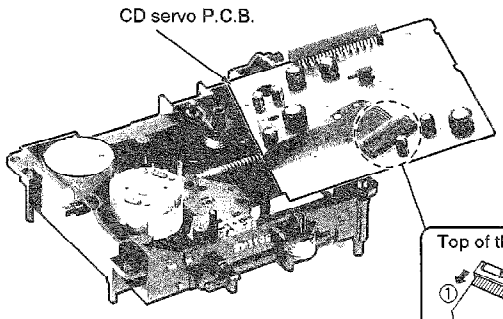
Perform the items Step 1 ~ Step 7 for CD changer unit removal (Refer to pages 4 and 5.)

Perform the items Step 1 ~ Step 4 for traverse unit removal (Refer to page 6.)



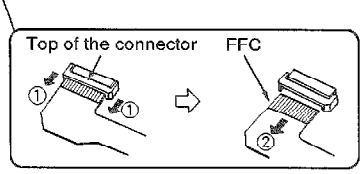
Step 1 Remove the 3 screws.

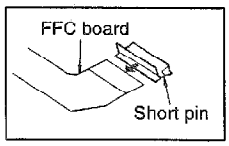
Step 2 Unsolder the motor terminals.

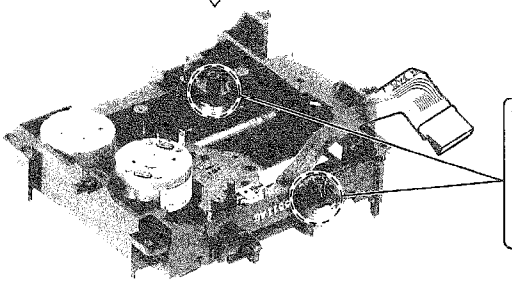


Step 3 Remove the FFC from the connector, and then remove the servo P.C.B..

Caution:
Insert a short pin into the traverse unit FFC board.
(Refer to "Hnading Precautions for Traverse Deck" on page 2.)

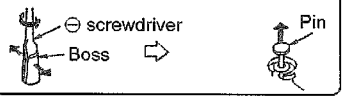


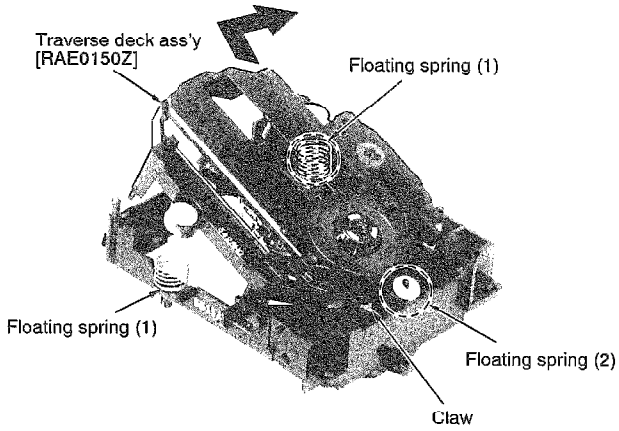




Step 4 Remove the pins.

1. Spread the boss with ⊖ screwdriver.
2. Pull out the pin in the direction of arrow.





Step 5 Release the claws, and then remove the traverse deck ass'y.

ⓘ Be careful not to lose the 3 springs because those will also be removed on removal of the traverse deck ass'y.

Installation of the CD servo P.C.B.

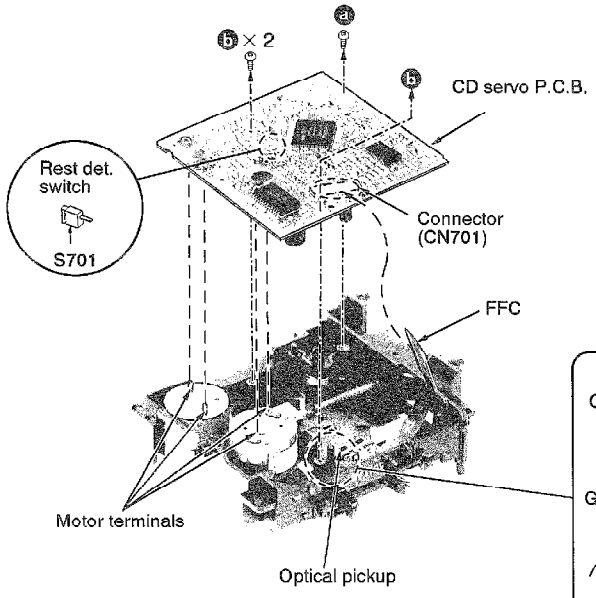
Step 1 Before installing the CD servo P.C.B., move the optical pickup toward the outer edge from mark "▼".

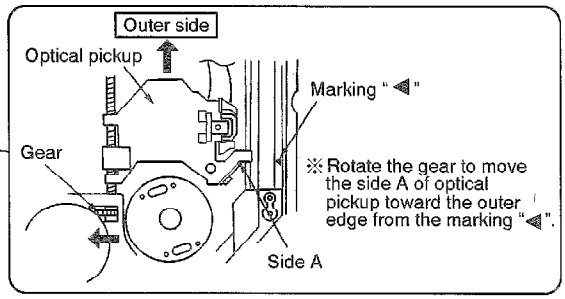
ⓘ In case that the optical pickup is not moved toward the outer edge from the marking, the rest detect switch (S701) mounted on the CD servo P.C.B. may be damaged.

Step 2 Connect the FFC to the connector.

Step 3 Install the CD servo P.C.B., and then tighten screws.

ⓘ After tightening screws, solder each motor terminal.




Outer side
Optical pickup
Marking "◀"
Gear
※Rotate the gear to move the side A of optical pickup toward the outer edge from the marking "◀".
Side A

To Supply Power Source

Cautions:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

This unit SL-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

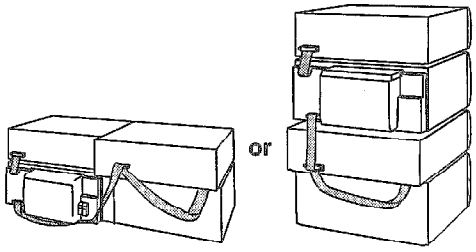


Fig. 1

When you have to test and service the unit SL-EH600 alone, use the following method to supply power source and operate the unit:

Apply +10 V DC power to the section between L1 (DC10V) and E1(GND). **(Shown in Fig.2)**

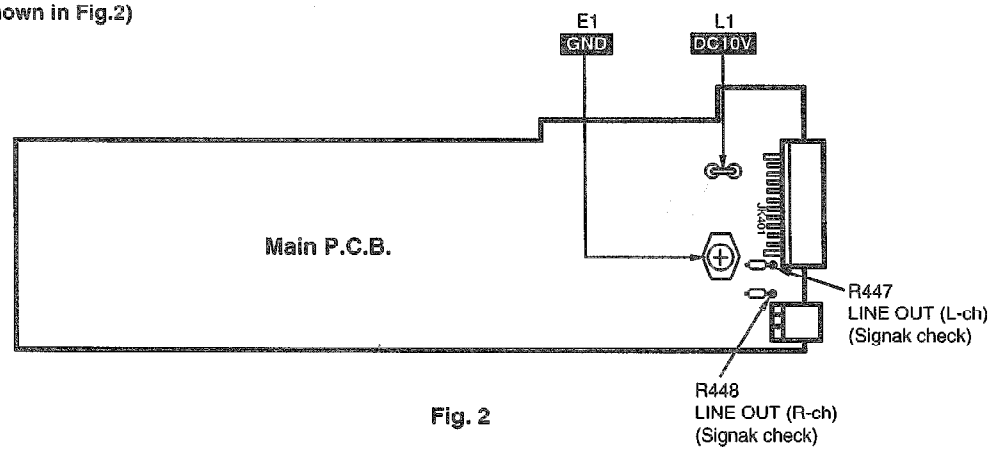


Fig. 2

To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (L-ch) of the resistor **R447** and the GND as well as the section between LINE OUT (R-ch) of the resistor **R448** and the GND and check if the signals are outputting from this unit. **(Shown in Fig. 2)**

Error Code Display and Servo Adjustment Function

This unit has an error code display function, so that if the unit operates incorrectly, the fault is displayed using an error code on the FL display of the Tuner/Amplifier (SA-EH600). It also has a servo adjustment function for displaying the status of servo system functions (Focus, Tracking, CLV Servo) on the FL display of the Tuner/Amplifier.
The system control IC and FL display are part of the Tuner/Amplifier so make sure the system has been connected properly before using three functions. (This unit can be operated independently, although the error code display and servo adjustment functions cannot be used.)
Use these two functions for guidance during fault diagnosis and repair.

Note:
Check beforehand for scratching or soiling of the test disc (SZZP1054C), and soiling or other problems with the pickup lens.

● Error code display procedure

Automatic adjustment results

Turn the power ON.

↓

Load the test disc (SZZP1054C).

↓

Hold down the REPEAT button for at least 2 seconds, and then press the STOP button for at least 2 seconds while continuing to hold down the REPEAT button.

↓

A servo section error code is displayed. (See **Table 2.**)
Use this error code display as a guideline for finding the malfunction point in the servo circuitry. If the error code "**E-00**" is displayed, the unit is "OK (No problem)."

Checking the mechanism switches

↓

Press the F. SKIP button.

↓

A mechanism OK/NG error code is displayed. (See **Table 1.**)
This error code can be used diagnose whether or not the mechanism is OK. If there are multiple errors, these can be displayed successively by pressing the F. SKIP button.

↓

Remove the disc and turn the power OFF. (The error code display mode is canceled.)

● Servo adjustment procedure

Turn the power ON.

↓

Load the test disc (SZZP1054C).

↓

Hold down the REPEAT button for at least 2 seconds, and then press the PAUSE button for at least 2 seconds while continuing to hold down the REPEAT button.

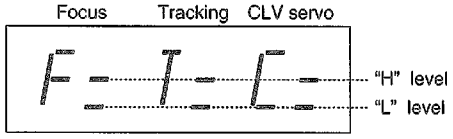
↓

Press the ▶ (PLAY) button, and play for 10 seconds.

↓

Servo adjustment results are displayed.

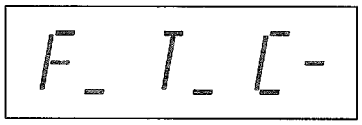
Focus Tracking CLV servo



↓

Remove the disc and turn the power OFF.

(Example)



	"L" level	"H" level
Focus system	normal	defective
Tracking system	normal	defective
CLV servo system	defective	normal

● Table 1

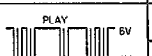
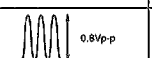
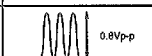
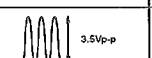
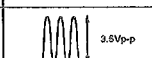
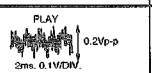
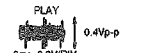
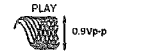
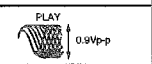
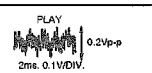
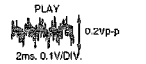
FL display	Symptom	Cause
H-15	When CD tray opens, it closes by itself.	Disc tray "Open" detection switch (S4) fault.
H-16	When CD tray close, it opens by itself.	
F-15	Does not play, even when CD play button is pressed.	Pickup rest position detection switch (S701) fault.
F-16	Traverse pushes up disc tray.	Up position detection switch (S3) fault.
F-26	Does not move even when " ▶ " (PLAY) button is pressed.	System control or servo processor IC (IC901, IC702) fault.
F-27	Tray keeps moving for a while, or selected tray does not open.	Disc number detection switch (S5) fault.
F-28		Stocker position detection, or play position detection switch (S1, S2) fault
F-75	NO DISC is displayed and unit does not play, even when a CD is loaded.	CD circuit power supply problem.

● **Error code based troubleshooting**

※ The unit is satisfactory if the error code is "**E-00**" of "**E-02**".

※ Before testing, check that the test disc is free of scratches and optical pickup is clean.

● Table 2

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Signal name	Location	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in the specified time period.	1. Clocks X1 and X2, power supply VDD and reset/RST, all on IC702. 2. MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	MDATA	IC702 ⑧ pin		4.4 V
			MCLK	IC702 ⑦ pin		4.3 V
			MLD	IC702 ⑨ pin		4.4 V
			SENSE	IC702 ⑩ pin	—	—
			/RST	IC702 ⑱ pin	4.9 V	4.9 V
			X1	IC702 ⑱ pin		
			X2	IC702 ⑲ pin		
E-03 E-05 E-07 E-09 E-0B E-0D E-0F	Disc play unstable.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuits (check waveforms, voltages, and part values.) 3. Spindle driver circuit. 4. Optical pickup.	F E	IC702 ㉜ pin		2.5 V
			T E	IC702 ㉝ pin		2.5 V
			FOD	IC702 ㉘ pin	2.5 V	2.5 V
			TRD	IC702 ㉗ pin	2.5 V	2.5 V
			KICK	IC702 ㉖ pin	2.5 V	2.5 V
			/FLOCK	IC702 ⑪ pin	—	—
			/RF DET	IC702 ㊳ pin	0 V	5.0 V
			R F	TJ701		1.7 V
			STAT	IC702 ⑰ pin	0.7 V	0 V
E-04 E-06 E-0C E-0E	Best "Eye" (PD Balance) adjustment not completed in the specified time period.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuit (check waveforms, voltages, and part values.) 3. Optical pickup.	FBAL	IC702 ㉚ pin	2.5V	2.5 V
			R F	IC701		1.7 V
			F E	IC702 ㉜ pin		2.5 V
			/TLOCK	IC702 ⑫ pin	—	—
			OFT	IC702 ㊱ pin	0 V	0 V
E-08 E-0A	Focus or Tracking gain adjustment not completed in the specified time period.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuit (check waveforms, voltages, and part values.) 3. Optical pickup.	F E	IC702 ㉜ pin		2.5 V
			T E	IC702 ㉝ pin		2.5 V
			/TLOCK	IC702 ⑫ pin	—	—
			O F T	IC702 ㊱ pin	0 V	0 V

Schematic Diagram

	Page
A SERVO CIRCUIT	20, 21
B SWITCH CIRCUIT	22
C SWITCH (S2, S3) CIRCUIT	22
D LOADING MOTOR CIRCUIT	22
E OPERATION CIRCUIT	22
F MAIN CIRCUIT	22, 23

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- S1 : Stocker position detect switch in " OFF " position
- S2 : Play position detect switch in " OFF " position
- S3 : Up position detect switch in " OFF " position
- S4 : Tray open detect switch in " OFF " position
- S5 : Disc number detect switch in " OFF " position
- S601 : Disc select switch (DISC 5)
- S602 : Disc select switch (DISC 4)
- S603 : Disc select switch (DISC 3)
- S604 : Disc select switch (DISC 2)
- S605 : Disc select switch (DISC 1)
- S606 : Disc check switch (⏏ NEXT OPEN)
- S607 : Repeat switch (REPEAT)
- S608 : AI edit switch (AI EDIT)
- S609 : Random play switch (RANDOM)
- S610 : R. Skip/Search switch (⏮/◀◀)
- S611 : Stop switch (■)
- S612 : Play switch (▶, SELECT)
- S613 : F. Skip/Search switch (▶▶/⏭)
- S614 : Pause switch (⏸)
- S615 : Disc tray open/close switch (⏏ OPEN/CLOSE)
- S701 : Rest switch in " OFF " position

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : CD STOP
  ( ) : CD PLAY [1kHz, L + R, 0 dB]

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

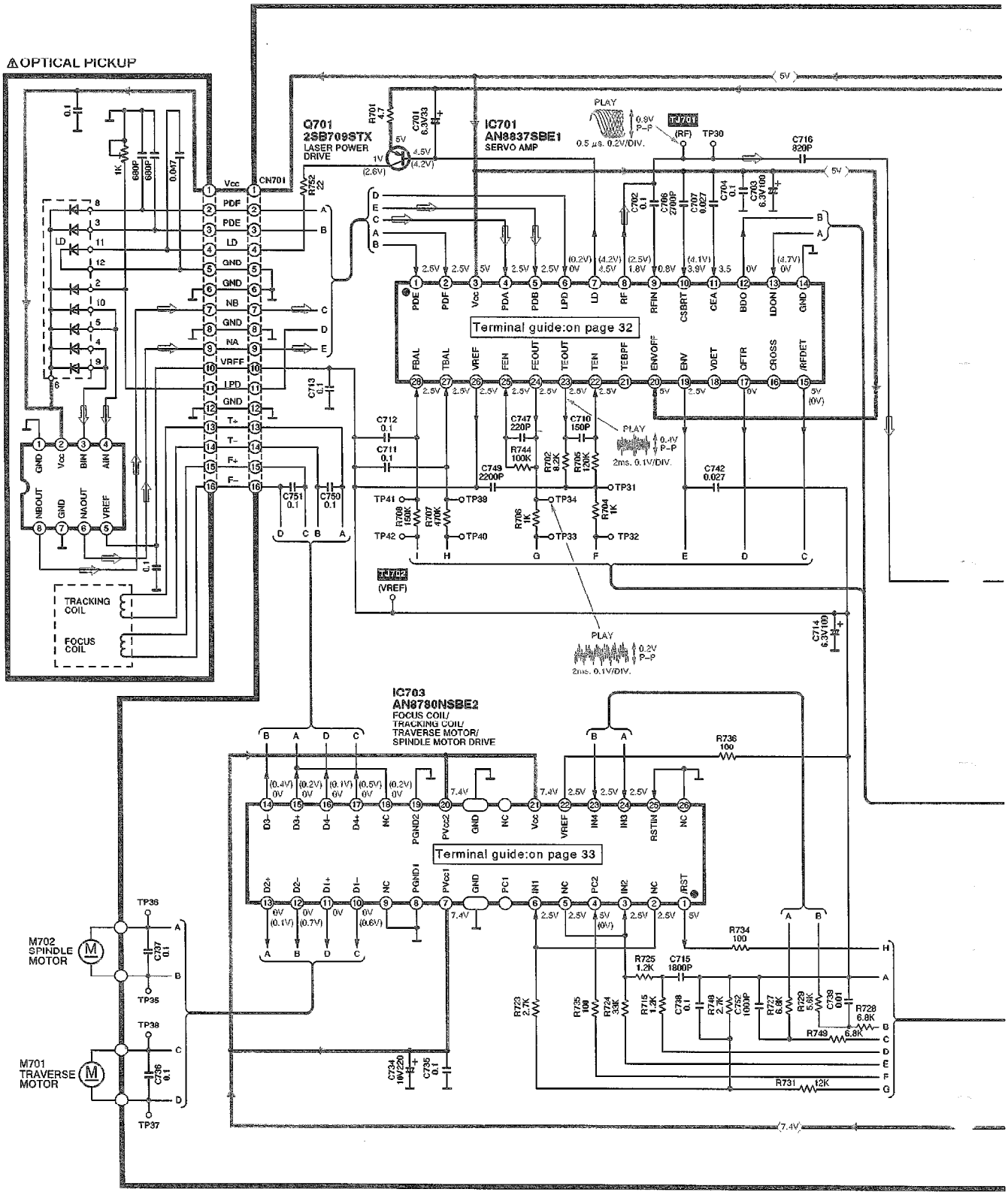
- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**

  : Positive voltage line

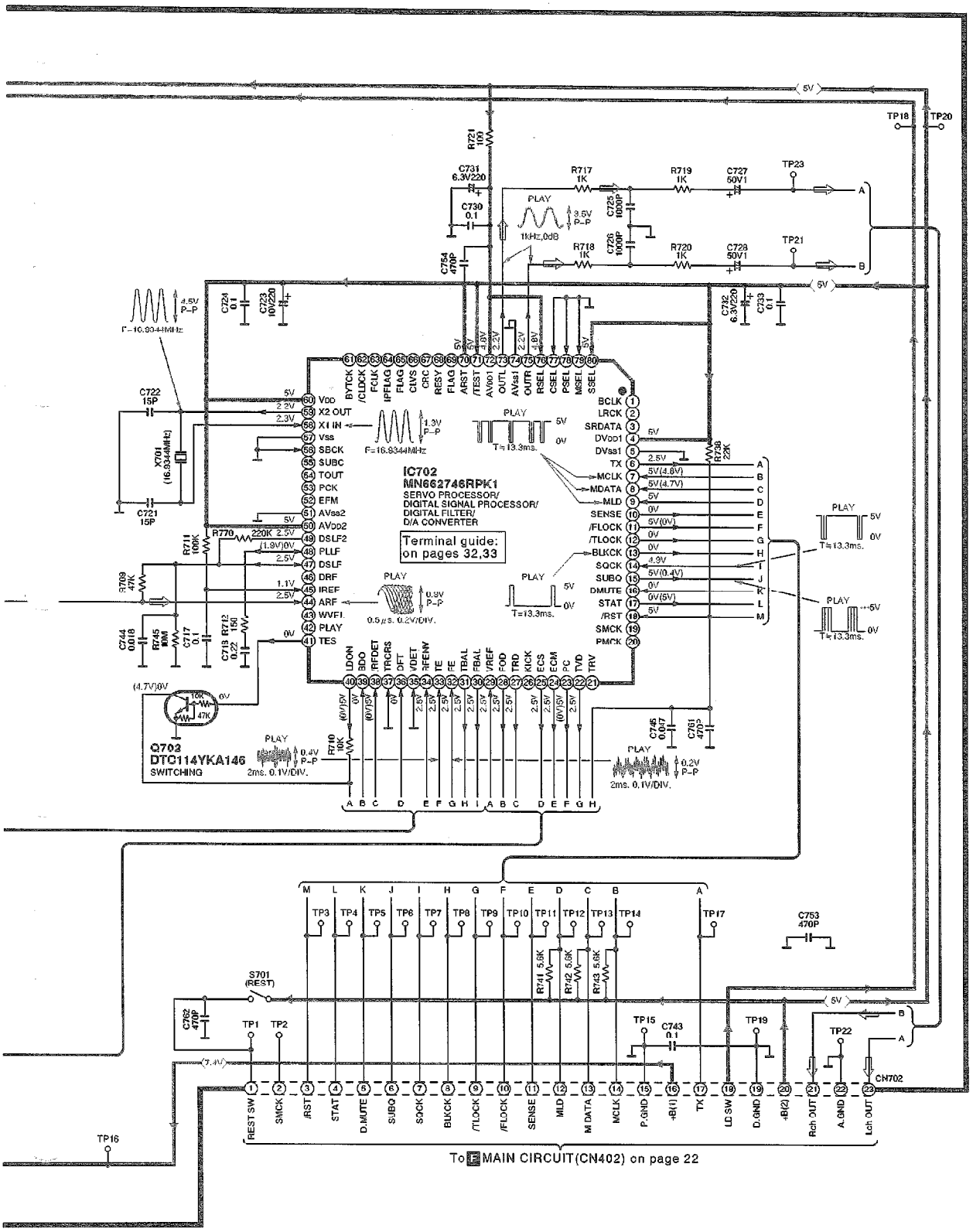
  : CD signal line

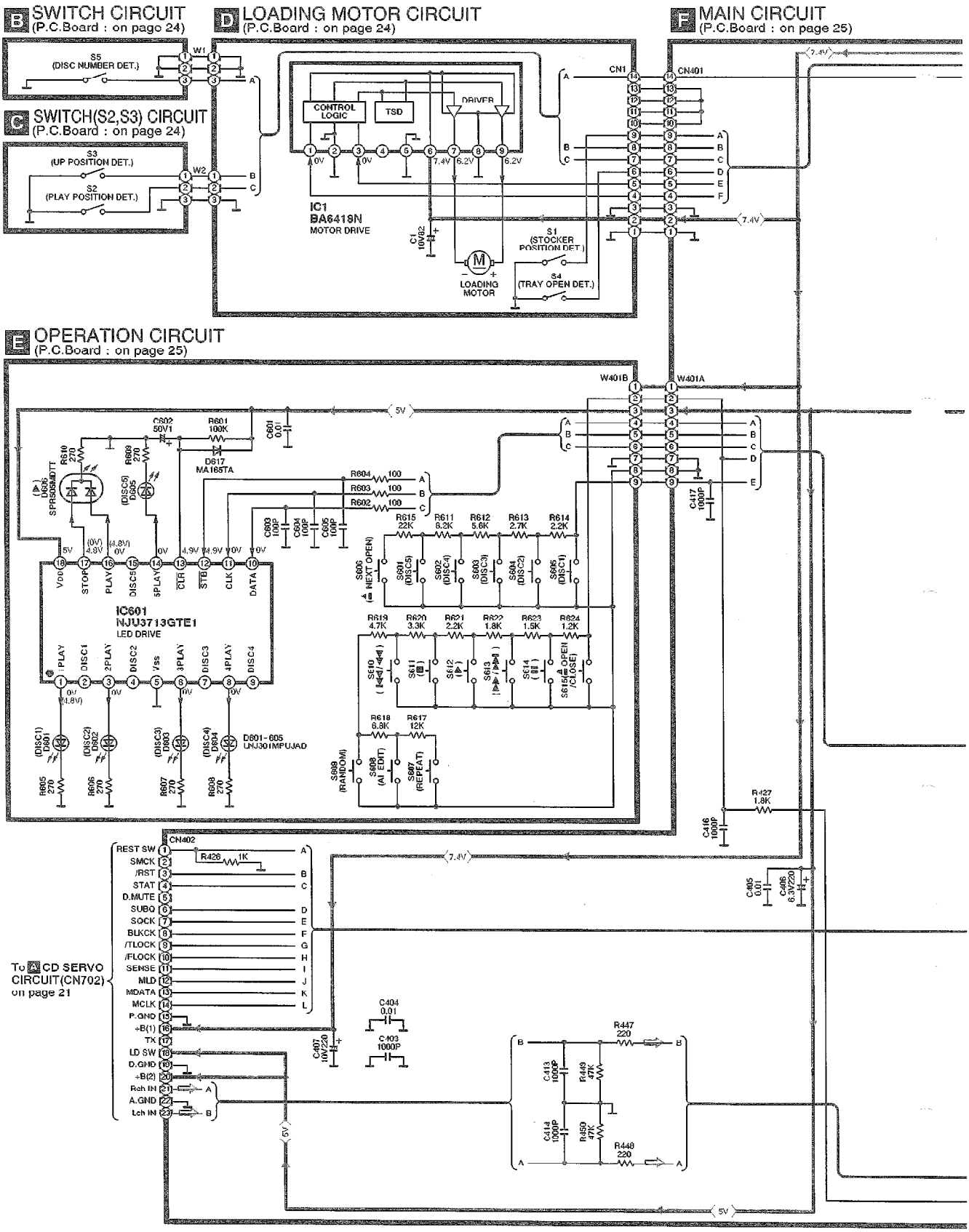
A CD SERVO CIRCUIT (P.C.Board:on page 24)



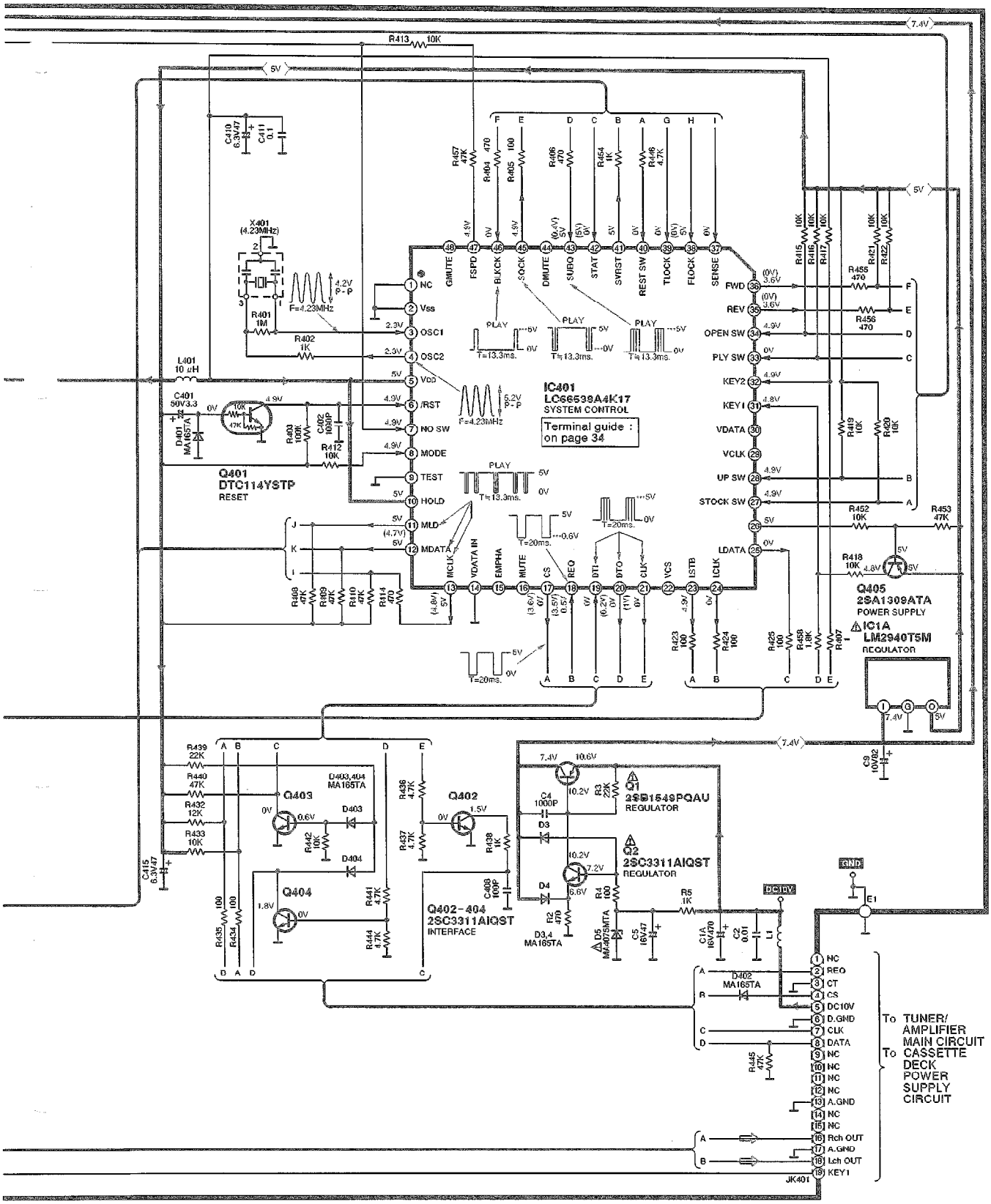
: Positive voltage line

: CD signal line




B SWITCH CIRCUIT
(P.C.Board : on pago 24)
S5
(DISC NUMBER DET.)
C SWITCH(S2,S3) CIRCUIT
(P.C.Board : on page 24)
S3
(UP POSITION DET.)
S2
(PLAY POSITION DET.)
D LOADING MOTOR CIRCUIT
(P.C.Board : on page 24)
CONTROL LOGIC
TSD
DRIVER
IC1
BA6418N
MOTOR DRIVE
LOADING MOTOR
S1
(STOCKER POSITION DET.)
S4
(TRAY OPEN DET.)
F MAIN CIRCUIT
(P.C.Board : on page 25)
CN1
CN401
E OPERATION CIRCUIT
(P.C.Board : on page 25)
W401B
W401A
IC601
NJU3713GTE1
LED DRIVE
D601~605
UNJ301MPUJAD
S605 (NEXT OPEN)
S606 OPEN (CLOSE)
S609 (RANDOM)
S608 (A-B EDIT)
S607 (REPEAT)
CN402
To A CD SERVO CIRCUIT(CN702) on page 21

: Positive voltage line : CD signal line

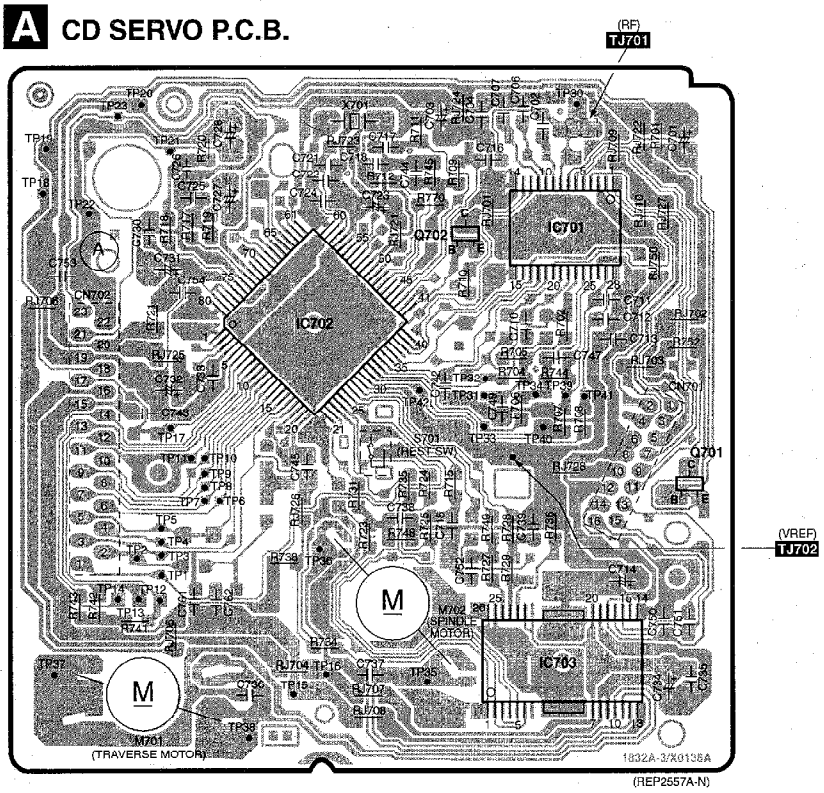


■ Printed Circuit Board Diagram

Note:

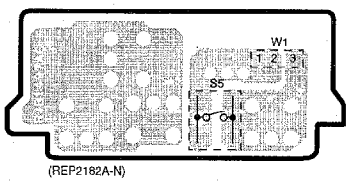
- This printed circuit board diagram may be modified at any time with the development of new technology.

A CD SERVO P.C.B.



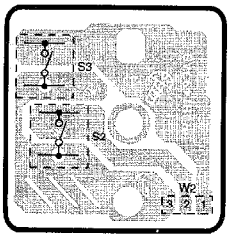
(REP2557A-N)

B SWITCH P.C.B.



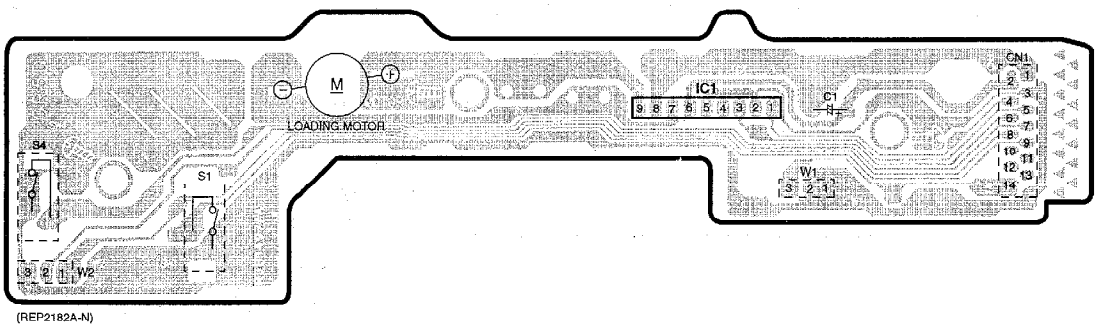
(REP2182A-N)

C SWITCH (S2,S3) P.C.B.



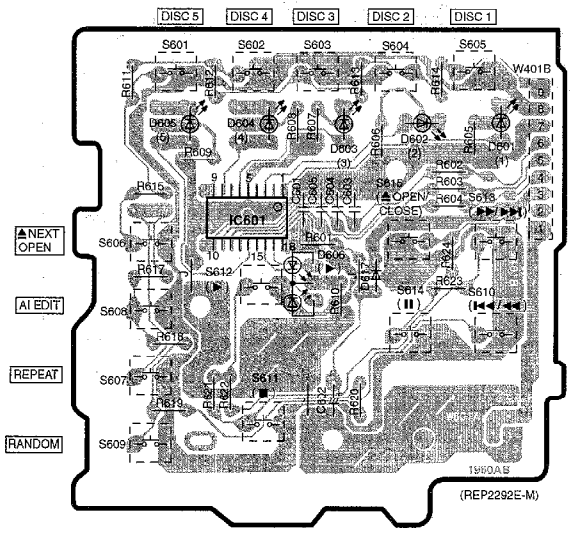
(REP2182A-N)

D LOADING MOTOR P.C.B.

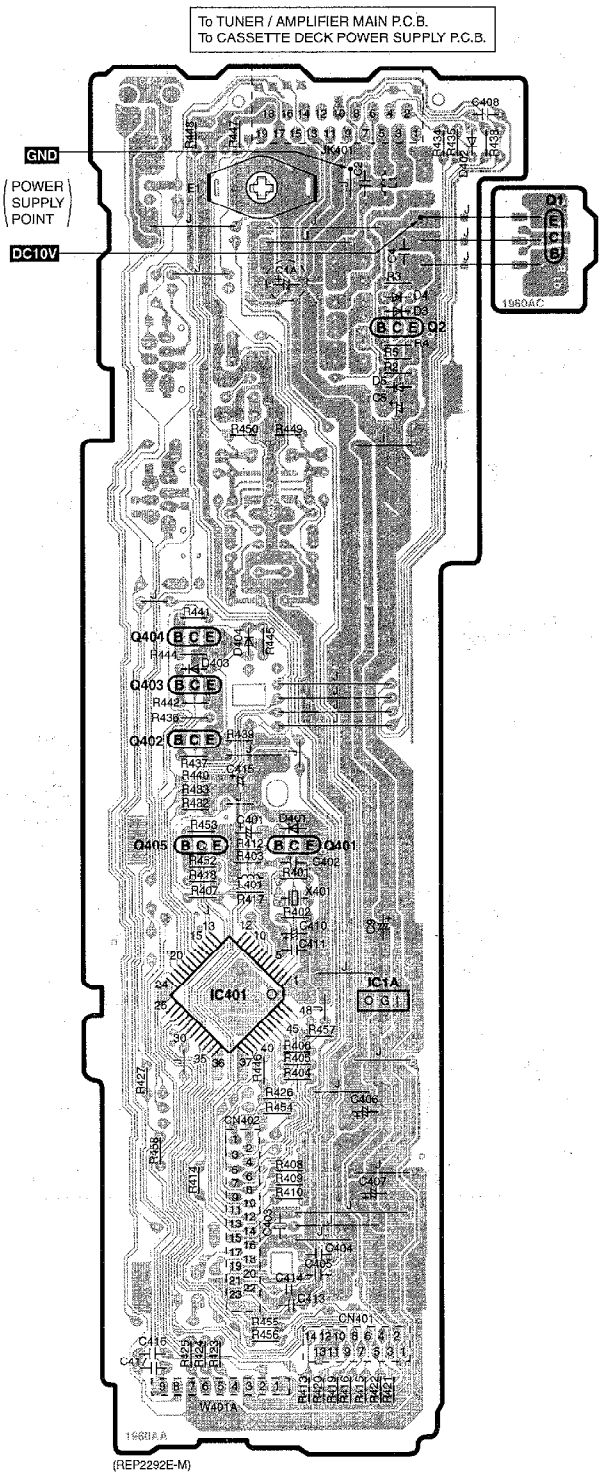


(REP2182A-N)

E OPERATION P.C.B.



F MAIN P.C.B.



Type Illustration of IC's, Transistors and Diodes

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 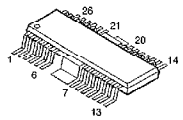 </td>
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 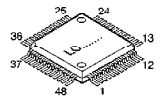 </td>
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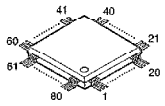
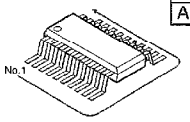
  </td>
<td colspan="2"> 
NJU3713GTE1 | 18PIN
AN8837SBE1 | 28PIN</td>
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 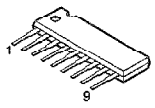 </td>
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 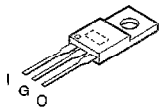 </td>
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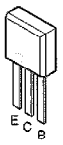
2SC3311AIQST
  </td>
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 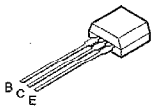 </td>
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 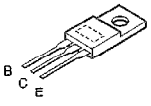 </td>
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 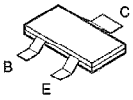 </td>
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 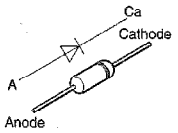 </td>
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 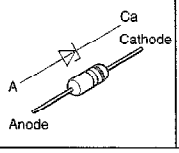 </td>
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 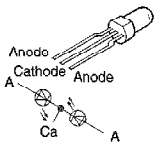 </td>
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 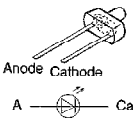 </td>
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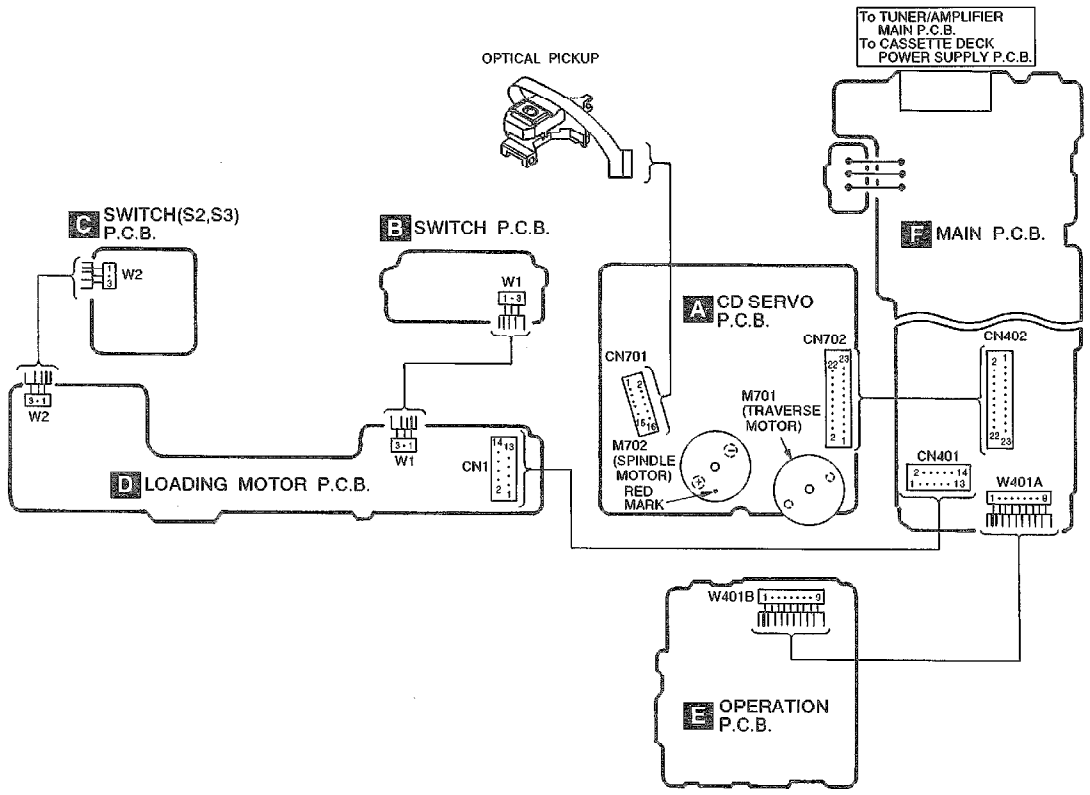
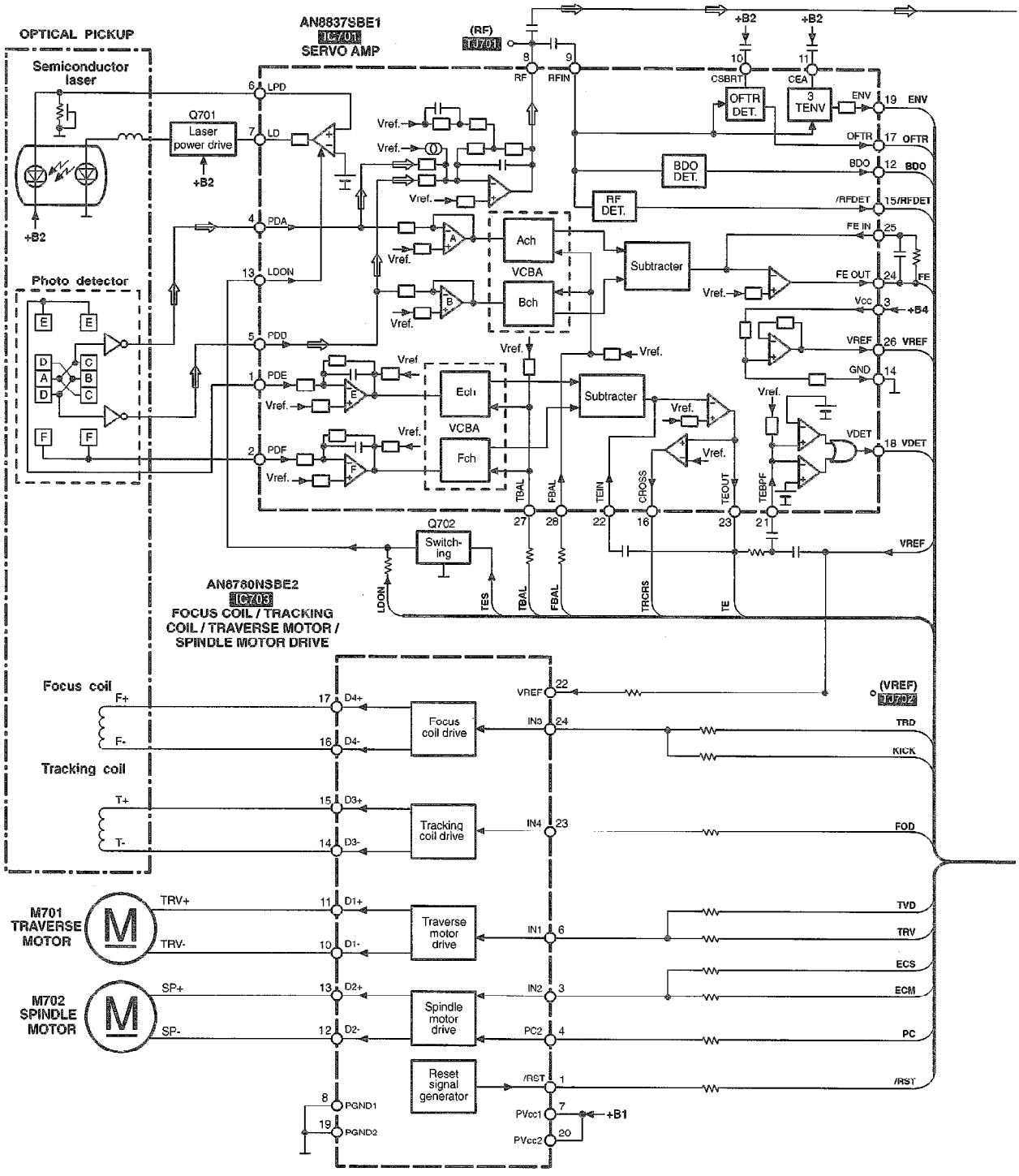
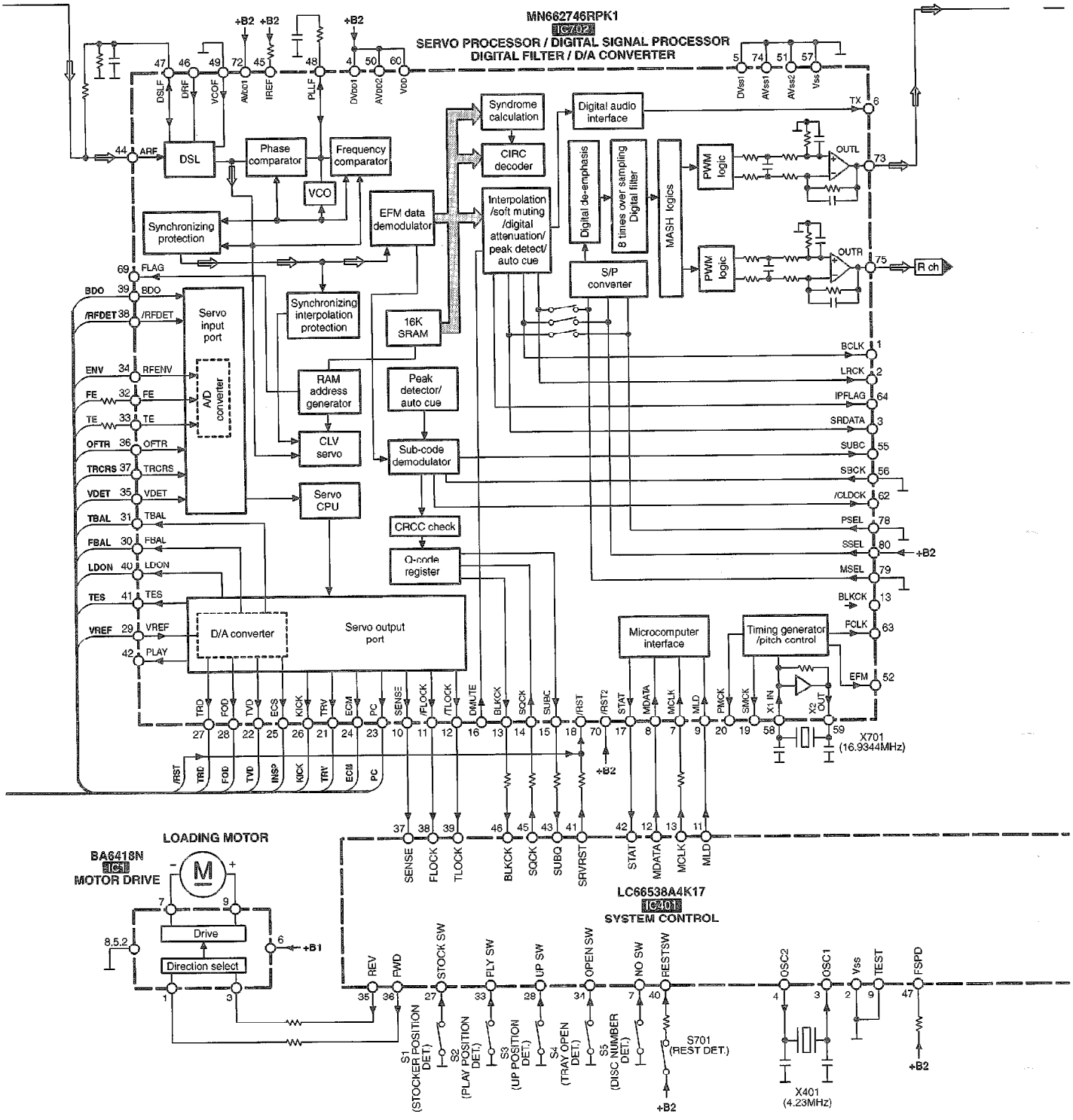
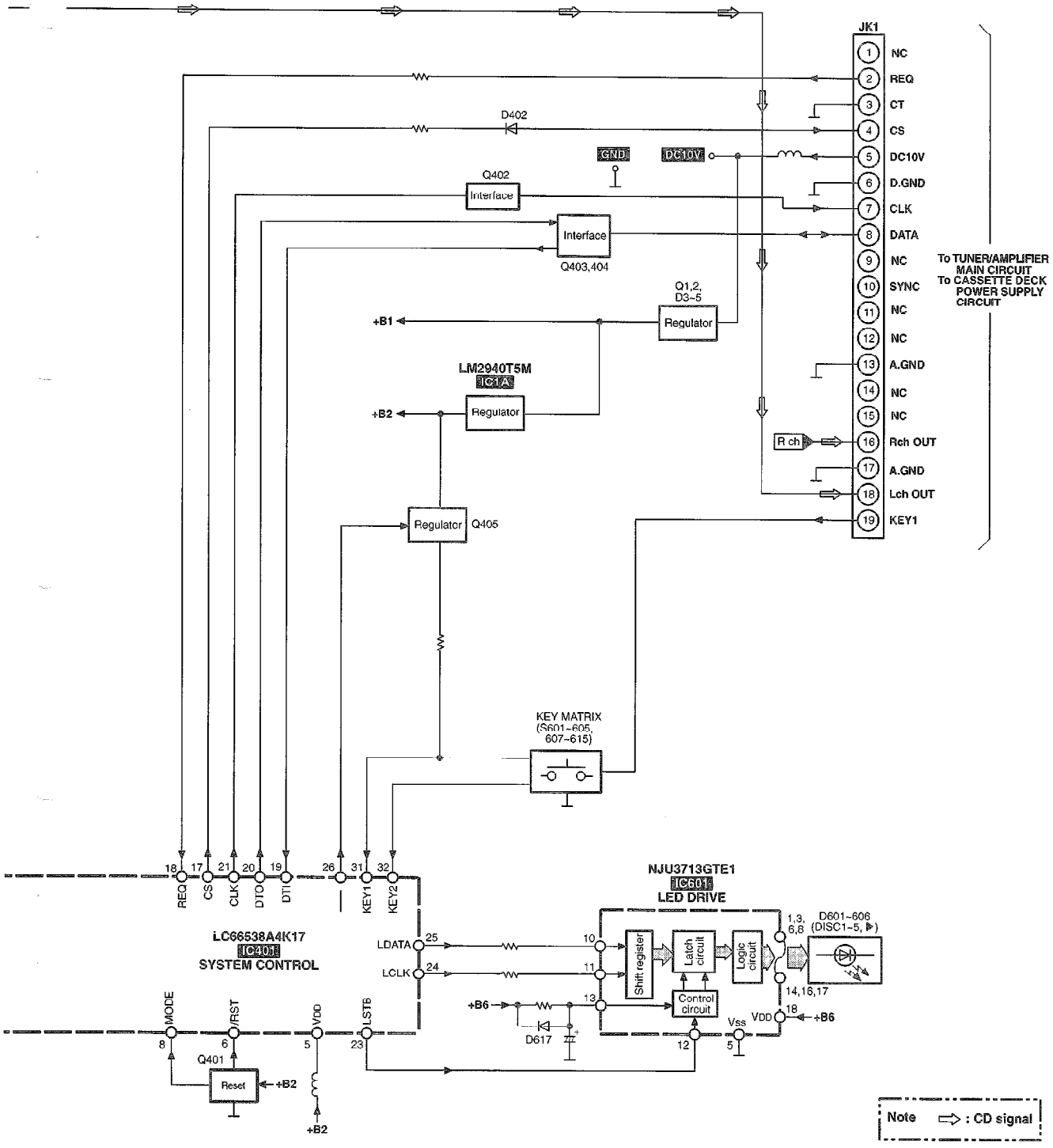
Wiring Connection Diagram



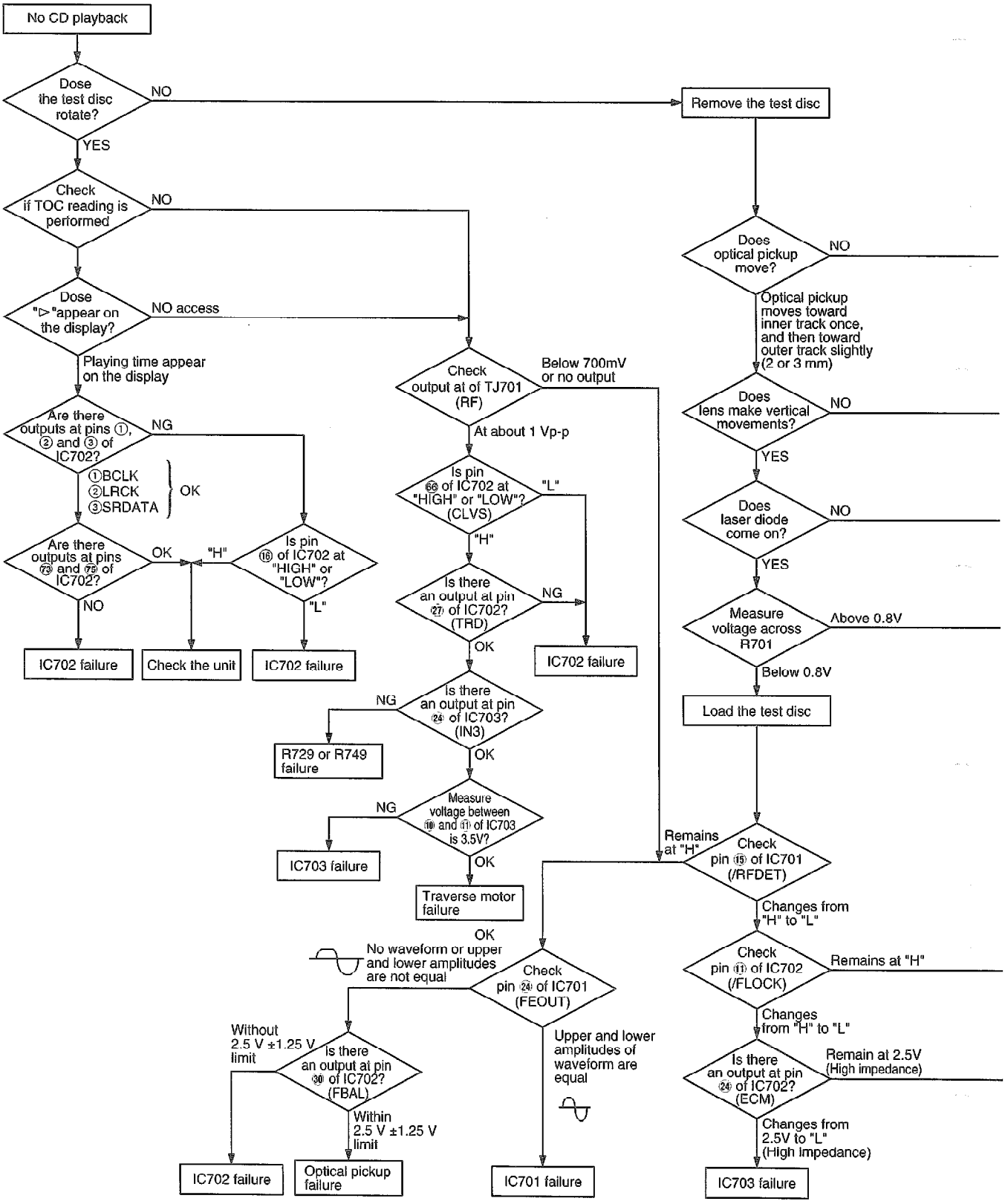
Block Diagram

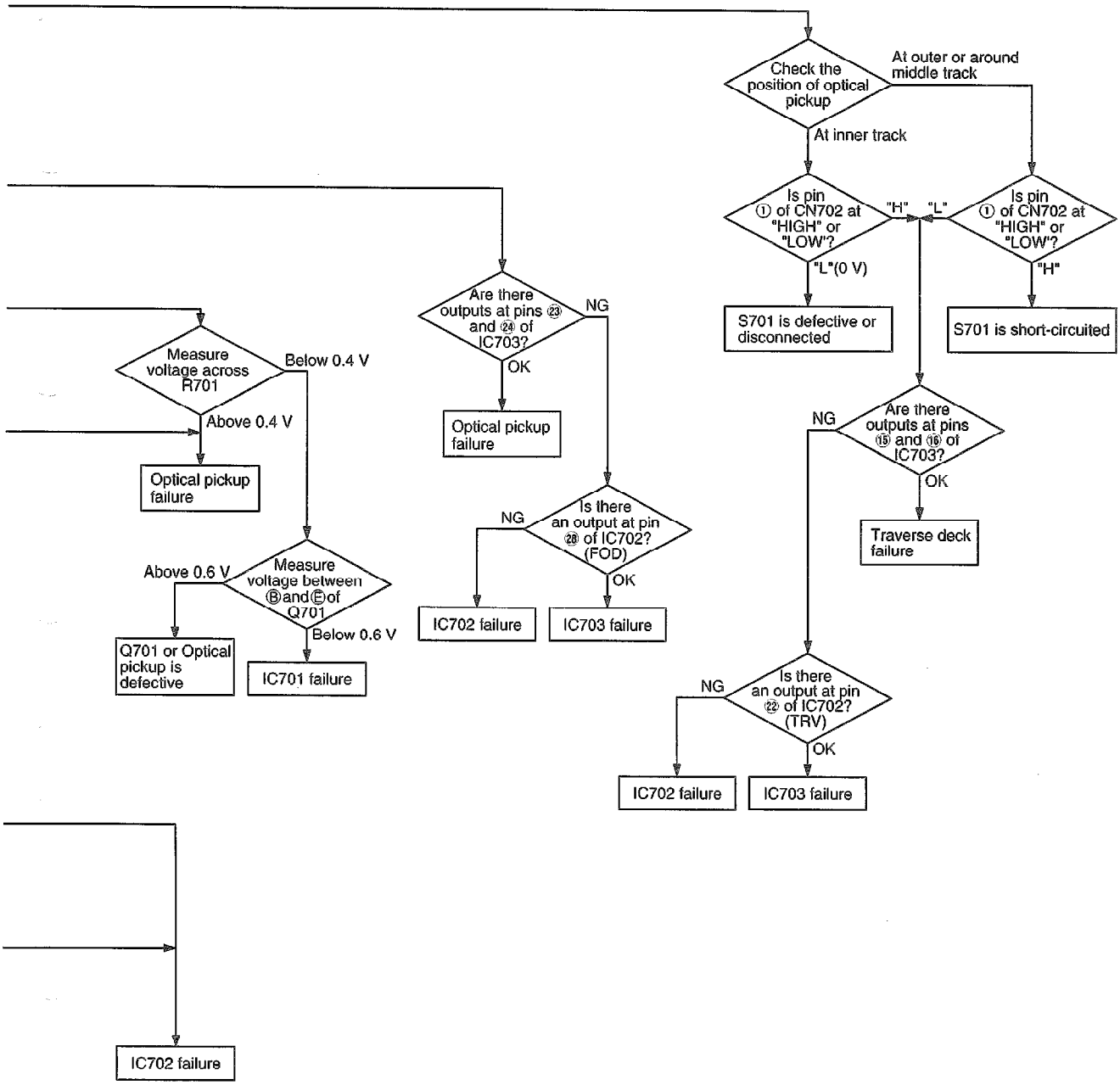



MN662746RPK1
IC702
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER / D/A CONVERTER
+B2
DSL
Phase comparator
Frequency comparator
VCO
Synchronizing protection
EFM data demodulator
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation/ peak detect/ auto cue
Digital audio interface
Digital de-emphasis
8 times over sampling Digital filter
MASH logics
S/P converter
PWM logic
OUTL
OUTR
R ch
Synchronizing interpolation protection
16K SRAM
RAM address generator
Peak detector/ auto cue
CLV servo
Sub-code demodulator
Servo CPU
CRCC check
Q-code register
Servo input port
A/D converter
D/A converter
Servo output port
Microcomputer interface
Timing generator /pitch control
X701
(16.9344MHz)
LOADING MOTOR
BA6418N
IC1
MOTOR DRIVE
Drive
Direction select
LC66538A4K17
IC401
SYSTEM CONTROL
S1 (STOCKER POSITION DET.)
S2 (PLAY POSITION DET.)
S3 (UP POSITION DET.)
S4 (TRAY OPEN DET.)
S5 (DISC NUMBER DET.)
S701 (REST DET.)
X401
(4.23MHz)


JK1
1 NC
2 REQ
3 CT
4 CS
5 DC10V
6 D.GND
7 CLK
8 DATA
9 NC
10 SYNC
11 NC
12 NC
13 A.GND
14 NC
15 NC
16 Rch OUT
17 A.GND
18 Lch OUT
19 KEY1
To TUNER/AMPLIFIER MAIN CIRCUIT
To CASSETTE DECK POWER SUPPLY CIRCUIT
D402
GND
DC10V
Q402
Interface
Interface
Q403,404
Q1,2, D3~5
Regulator
+B1
LM2940T5M
IC1A
+B2
Regulator
Regulator
Q405
R ch
KEY MATRIX
(S601~605, 607~615)
NJU3713GTE1
IC601
LED DRIVE
LC66538A4K17
IC401
SYSTEM CONTROL
REQ
CS
CLK
DTO
DTI
KEY1
KEY2
LDATA
LCLK
MODE
/RST
VDD
LSTB
Q401
Reset
+B2
+B6
D617
Shift register
Latch circuit
Logic circuit
Control circuit
Vss
VDD
D601~606 (DISC1~5, ▶)
1,3, 6,8
14,16,17
Note ⇨ : CD signal

Troubleshooting Guide


No CD playback
Dose the test disc rotate?
NO
YES
Remove the test disc
Check if TOC reading is performed
NO
Dose "▷"appear on the display?
NO access
Playing time appear on the display
Are there outputs at pins ①, ② and ③ of IC702?
NG
①BCLK
②LRCK
③SRDATA
OK
Are there outputs at pins ⑬ and ⑮ of IC702?
OK
"H"
Is pin ⑯ of IC702 at "HIGH" or "LOW"?
NO
"L"
IC702 failure
Check the unit
IC702 failure
Check output at of TJ701 (RF)
Below 700mV or no output
At about 1 Vp-p
Is pin ⑯ of IC702 at "HIGH" or "LOW"? (CLVS)
"L"
"H"
Is there an output at pin ㉗ of IC702? (TRD)
NG
OK
IC702 failure
Is there an output at pin ㉔ of IC703? (IN3)
NG
OK
R729 or R749 failure
Measure voltage between ⑩ and ⑪ of IC703 is 3.5V?
NG
OK
IC703 failure
Traverse motor failure
OK
No waveform or upper and lower amplitudes are not equal
Check pin ㉔ of IC701 (FEOUT)
Upper and lower amplitudes of waveform are equal
Without 2.5 V ±1.25 V limit
Is there an output at pin ㉚ of IC702? (FBAL)
Within 2.5 V ±1.25 V limit
IC702 failure
Optical pickup failure
IC701 failure
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm)
Does lens make vertical movements?
NO
YES
Does laser diode come on?
NO
YES
Measure voltage across R701
Above 0.8V
Below 0.8V
Load the test disc
Remains at "H"
Check pin ⑮ of IC701 (/RFDET)
Changes from "H" to "L"
Check pin ⑪ of IC702 (/FLOCK)
Remains at "H"
Changes from "H" to "L"
Is there an output at pin ㉔ of IC702? (ECM)
Remain at 2.5V (High impedance)
Changes from 2.5V to "L" (High impedance)
IC703 failure


Check the position of optical pickup
At outer or around middle track
At inner track
Is pin ① of CN702 at "HIGH" or "LOW"?
"H"
"L"
Is pin ① of CN702 at "HIGH" or "LOW"?
"L"(0 V)
"H"
S701 is defective or disconnected
S701 is short-circuited
Are there outputs at pins ㉓ and ㉔ of IC703?
NG
OK
Optical pickup failure
Measure voltage across R701
Below 0.4 V
Above 0.4 V
Optical pickup failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC702 failure
IC703 failure
Measure voltage between Ⓑ and Ⓔ of Q701
Above 0.6 V
Below 0.6 V
Q701 or Optical pickup is defective
IC701 failure
Are there outputs at pins ⑮ and ⑯ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ㉒ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure
IC702 failure

■ Terminal Function of IC's

• IC701 (AN8837SBE1): Servo Amp.

No.	Terminal Name	I/O	Function
1	PDE	I	Tracking signal input terminal 1 (E ch)
2	PDF	I	Tracking signal input terminal 2 (F ch)
3	VCC	I	Power supply terminal
4	PDA	I	Focus signal input terminal 1 (A ch)
5	PDB	I	Focus signal input terminal 2 (B ch)
6	LPD	I	Laser PD signal
7	LD	O	Laser power auto control output
8	RF	O	RF amp terminal
9	RF IN	I	AGC input terminal
10	CSBRT	I	OFTR capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	BDO	O	Dropout detection control
13	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
14	GND	—	GND terminal
15	/RFDET	O	RF det. signal output terminal ("L": det.)
16	CROSS	O	Tracking error zero cross output
17	OFTR	O	Off track detection ("H": det.)
18	VDET	O	Oscillation det. signal ("H": det.)
19	ENV	O	Envelope signal output terminal
20	ENVOFF	I	Not used, connected to power supply
21	TEBPF	O	Oscillation detect input terminal
22	TEN	I	Tracking error signal
23	TEOUT	O	Tracking error signal
24	FEOUT	O	Focus error signal
25	FEN	I	Focusing error signal
26	VREF	O	Reference voltage output terminal
27	TBAL	I	Tracking balance adj. input
28	FBAL	I	Focus balance adj. input

• IC702 (MN662746RPK1) : Servo Processor, Digital Signal Processor, Digital Filter, D/A Converter

Pin No.	Terminal Name	I/O	Function
1	BCLK	—	Bit clock output for serial data (Not used, open)
2	LRCK	—	L/R clock signal output (Not used, open)
3	SRDATA	—	Serial data output (Not used, open)
4	$DV_{DD}1$	—	Power supply input (for digital circuit)
5	DVss1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK = 75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q resister
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset signal input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK = 8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK = 4.2336 MHz) (Not used, open)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK = 88.2 kHz) (Not used, open)
21	TRV	—	Traverse forced feed output (Not used, open)
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	–	Kick pulse output (Not used, open)
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)

Pin No.	Terminal Name	I/O	Function
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	—	Play signal out ("H": PLAY) (Not used, open)
43	WVEL	—	Double speed status signal output ("H": Double speed) (Not used, open)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (Not used, open)
47	DSLF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	DSLF	I/O	DSL loop filter
50	AVDD2	—	Power supply input (for analog circuit)
51	AVss2	—	GND (for analog circuit)
52	EFM	—	EFM signal output (Not used, open)
53	PCK	—	PLL extraction clock output (fPCK= 4.321 MHz during normal playback) (Not used, open)
54	TOUT	—	Phase comparison signal of EFM and PCK signals (Not used, open)
55	SUBC	—	Sub-code serial data output (Not used, open)
56	SBCK	I	Clock input for sub-code serial data
57	Vss	—	GND
58	X1 IN	I	Crystal oscillating circuit input (f = 16.9344 MHz)
59	X2 OUT	O	Crystal oscillating circuit output (f = 16.9344 MHz)
60	VDD	—	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (Not used, open)
62	/CLDCK	—	Sub-code frame clock signal output (fCLDCK = 7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fFCLK = 7.35 kHz, double = 14.7 kHz) (Not used, open)
64	IPFLAG	—	Interpolation flag output ("H": Interpolation)
65	FLAG	—	Flag output (Not used, open)
66	CLVS	—	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (Not used, open)
67	CRC	—	Sub-code CRC checked output ("H": OK, "L": NG) (Not used, open)
68	RESY	—	De-emphasis ON signal output ("H": ON) (Not used, open)
69	FLAG	—	Frame re-synchronizing signal output (Not used, open)
70	ARST	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input
72	AVDD1	—	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	AVss1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level: RSEL = "H") (at "L" level: RSEL = "L")
77	CSEL	I	Crystal oscillating frequency designation input ("L": 16.9344 MHz, "H": 33.8688 MHz)
78	PSEL	I	Test terminal (Connected to GND)
79	MSEL	I	SMCK oscillating frequency designation input ("L": 4.2336 MHz, "H": 8.4672 MHz)
80	SSEL	I	SUBQ output mode select ("H": Q-code buffer mode)

• **IC703 (AN8780NSBE2): Focus Coil / Tracking Coil / Traverse Motor / Spindle Motor Drive**

No.	Terminal Name	I/O	Function
1	/RST	—	Not used, open
2	NC	—	———
3	IN2	I	Motor driver (2) input
4	PC2	I	Turntable motor drive signal ("L": ON)
5	NC	—	Not used, open
6	IN1	I	Motor driver (1) input
7	PVcc1	I	Driver power supply terminal (1)
8	PGND1	—	Driver GND terminal (1)
9	NC	—	Not used, connected to GND
10	D1–	O	Motor driver (1) output terminal (–)
11	D1+	O	Motor driver (1) output terminal (+)
12	D2–	O	Motor driver (2) output terminal (–)
13	D2+	O	Motor driver (2) output terminal (+)
14	D3–	O	Motor driver (3) output terminal (–)
15	D3+	O	Motor driver (3) output terminal (+)
16	D4–	O	Motor driver (4) output terminal (–)
17	D4+	O	Motor driver (4) output terminal (+)
18	NC	—	Not used, open
19	PGND2P	—	Driver GND terminal (2)
20	PVcc2	I	Driver power supply (2)
21	VCC	I	Power supply terminal
22	VREF	I	Reference voltage input terminal
23	IN4	I	Motor driver (4) input
24	IN3	I	Motor driver (3) input
25	RSTIN	I	Reset terminal (Not used, connected to GND)
26	NC	—	Not used, connected to GND

• IC401 (LC66538A4K17): System control

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, connected to GND
2	VSS	—	GND terminal
3	OSC1	I	Crystal oscillating circuit input (f = 4.23 MHz)
4	OSC2	O	Crystal oscillating circuit output (f = 4.23 MHz)
5	VDD	I	Power supply (+5 V)
6	/RST	I	Reset signal input ("L": reset)
7	NO SW	I	Disc tray number detection signal input
8	MODE	I	Test mode signal input
9	TEST	—	Test terminal
10	HOLD	I	No used, connected to VDD
11	MLD	O	Command load signal output
12	MDATA	O	Command data signal output
13	MCLK	O	Command clock signal output
14	VDATA IN	—	No used, connected to GND
15	EMPHA	—	No used, open
16	MUTE	—	No used, open
17	CS	O	Communication request signal output to SA-EH600
18	REQ	I	Communication request signal input from SA-EH600
19	DTI	I	Communication data signal input from SA-EH600
20	DTO	O	Communication data signal output to SA-EH600
21	CLK	O	Communication clock signal output to SA-EH600
22	VCS	—	No used, open
23	LSTB	O	LED drive signal output
24	LCLK	O	LED drive command clock signal output
25	LDATA	O	LED drive command data signal output
26	—	—	No used, connected to VDD
27	STOCK SW	I	Stocker position detection signal input
28	UP SW	I	Disc tray up position detection signal input
29	VCLK	—	No used, open
30	VDATA	—	No used, open
31	KEY1	I	Key switch detection signal input
32	KEY2	I	Key switch detection signal input

Pin No.	Terminal Name	I/O	Function
33	PLY SW	I	Disc tray play position detection signal input
34	OPEN SW	I	Disc tray open position detection signal input
35	REV	O	Loading motor drive (reverse) signal output
36	FWD	O	Loading motor drive (forward) signal output
37	SENSE	I	Sense signal input
38	FLOCK	I	Focus servo feeding signal input ("L": Feed)
39	TLOCK	I	Tracking servo feeding signal input ("L": Feed)
40	REST SW	I	Rest position detection signal input
41	SVRST	O	Reset signal output to IC702
42	STAT	I	Status signal input
43	SUBQ	I	Sub-code Q code input
44	DMUTE	—	No used, open
45	SQCK	O	Sub-code Q resister clock signal output
46	BLKCK	I	Sub-code block clock signal input (fBLKCK = 75 Hz during normal playback)
47	ESPD	—	No used, connected to VDD
48	GMUTE	—	No used, open

Replacement Parts List

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors); high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*All parts are supplied by MESA.

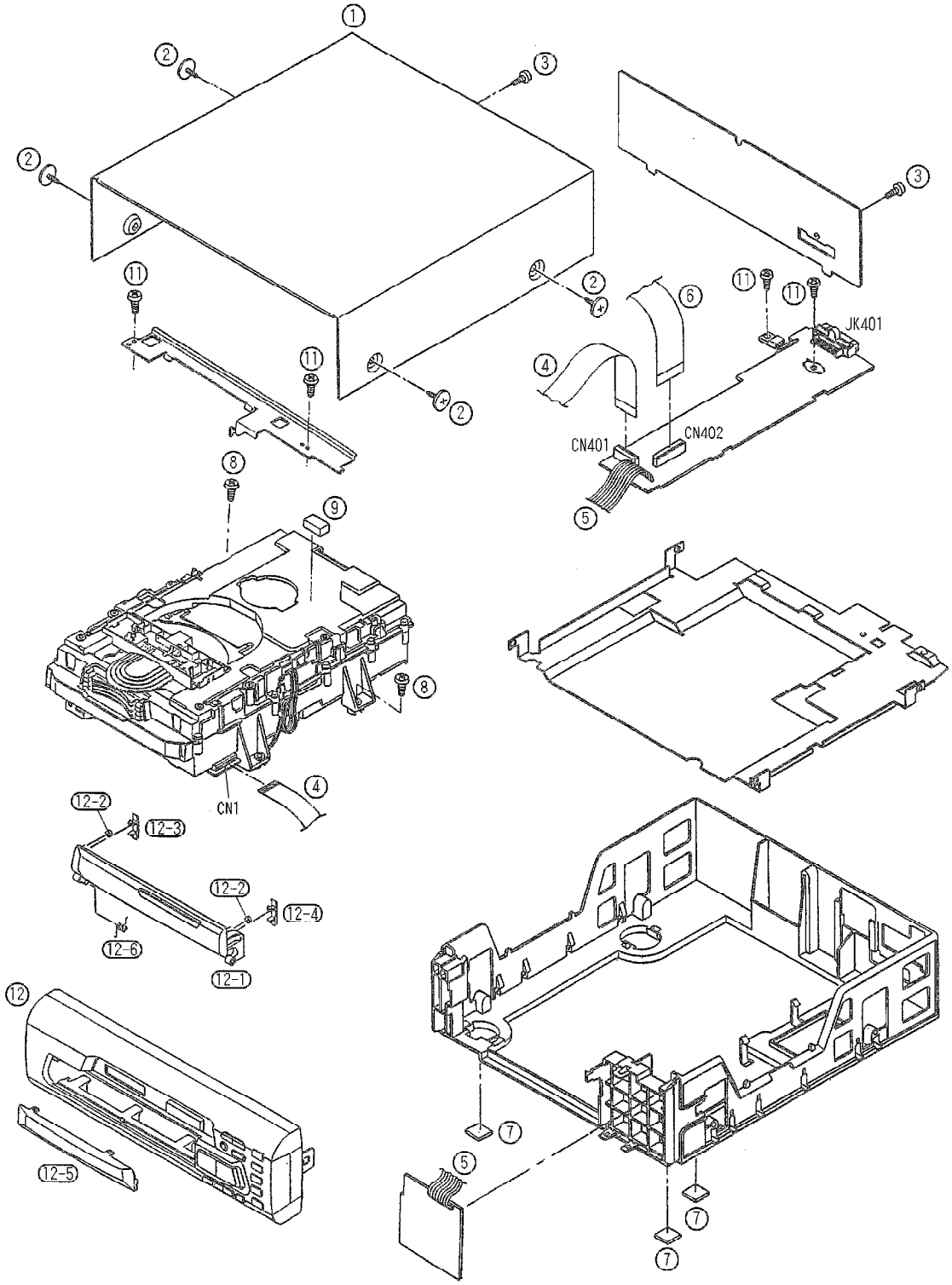
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0222-H	CABINET	1	
2	RHD30007-K1	SCREW	4	
3	XTBS3+8JFZ1	SCREW	2	
4	REZ0555	FLAT CABLE	1	
5	REZ1103	FLAT CABLE(9P)	1	
6	REZ0765	FFC(23P)	1	
7	RKA0089-K	RUBBER	3	
8	RHD30065	SCREW	2	
9	RMG0439-K	RUBBER	1	
11	XTB3+8JF7	SCREW	4	
12	RYP0731D-H	FRONT PANEL ASS'Y	1	
12-1	RGK0890A-H	DISC COVER	1	
12-2	RMG0305-K	RUBBER	2	
12-3	RKQ0197-X	CAP 1	1	
12-4	RKQ0204-X	CAP 2	1	
12-5	RKM0503A-Q	ORNAMENT PANEL	1	
12-6	RMB0472	SPRING	1	
301	RDG0309	GEAR	1	
302	RDG0310	GEAR	1	
303	RDG0311	GEAR	1	
304	RDG0313	GEAR	1	
305	RDV0036	BELT	1	
306	REM0058	MOTOR ASS'Y	1	
307	RGQ0170-K3	DISC TRAY(1)	1	
308	RGQ0171-K	DISC TRAY(2)	1	
309	RGQ0172-K	DISC TRAY(3)	1	
310	RGQ0173-K	DISC TRAY(4)	1	
311	RGQ0174-K	DISC TRAY(5)	1	
312	RME0170	SPRING	1	
313	RME0179	SPRING	1	
314	RME0180	SPRING	1	
315	RFKNACH430GC	MACHANISM BASE ASS'Y	1	
315-1	RMF0221	FELT	1	
315-2	RMG0402-K	WASHER	4	
316	RML0379	LEVER	1	
317	RML0380	LEVER	1	
318	RML0383	LEVER	1	
319	RML0385	LEVER	1	
320	RMM0139	SLIDE PLATE(1)	1	
321	RMM0141	SLIDE PLATE(2)	1	
322	RGQ0175-K	TRAY ORNAMENT	1	
323	RHD20010	SCREW	1	
324	RMA0868	ANGLE	1	
325	RME0171	SPRING	1	
326	RME0172	SPRING	1	
327	RML0377	LEVER	1	
328	RML0378	LEVER	1	
329	RMR0884-K	TRAY BASE	1	
330	RHD20009-1	SCREW	1	
331	RMC0274	SPRING	1	
332	RME0173	SPRING	1	
333	RML0376-1	ARM	1	
334	RMM0137	CARRIER	1	
335	RDG0312	GEAR	2	
336	RMM0134	DRIVE RACK	1	
337	RMM0135	CUSHION RACK	1	
338	XTN2+6F	SCREW	1	
339	XTS3+8J	SCREW	2	
340	XWE4E10	WASHER	2	
341	RME0178	SPRING	2	
342	RME0181	SPRING	1	
343	RME0182	SPRING	1	
344	RFKNLCA10EAK	MECHANISM COVER ASS'Y	1	
344-1	RMF0221	FELT	1	
345	RML0381	HOLD NAIL(1)	1	
346	RML0382	HOLD NAIL(2)	1	
347	RML0384	LEVER	2	
348	RHM245ZA	MAGNET	1	
349	RME0174	SPRING	1	
350	RFKNACH430GE	CLAMP BASE ASS'Y	1	
351	RML0388-1	LEVER	1	
352	RMR0761-W	CLAMPER	1	
353	RMR0899-K	FIXED PLATE	1	
354	XTB3+10J	SCREW	11	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
355	RMR0975-W	CAP	1	
356	REZ0555	FFC(14P)	1	
357	RME0142	SPRING	1	
358	RMK0293	TRAVERSE CHASSIS	1	
359	RMS0627	PIN	2	
360	XTN2+6G	SCREW	1	
361	XTV2+6G	SCREW	2	
362	REZ0792	FLAT CABLE ASS'Y(3P)(W2)	1	
363	REZ0793	FLAT CABLE ASS'Y(3P)(W1)	1	
364	RMG0430-Q	RUBBER TUBE	4	
365	XTW3+8T	SCREW	2	
⚠ 366	RAE0152Z	TRAVERSE DECK UNIT	1	
366-1	SMGD113-1	RUBBER	3	
366-2	SNSD38	SCREW	2	
367	RME0109	SPRING	2	
368	REZ0765	FFC(23P)	1	
C1	ECA1AKF820E	10V 820	1	
C1A	ECA1CM471B	16V 470UF	1	
C2	ECBT1E103ZF5	25V 0.01U	1	
C4	ECBT1H102KB5	50V 1000P	1	
C5	RCE1CKA470BG	16V 47U	1	
C9	ECA1AKF820B	10V 82U	1	
C401	RCE1HKA3R3BG	50V 3.3U	1	
C402,03	ECBT1H102KB5	50V 1000P	2	
C404,05	ECBT1E103ZF5	25V 0.01U	2	
C406	ECEA0JKA221B	6.3V 220U	1	
C407	ECEA1AKA221B	10V 220U	1	
C408	ECBT1H101KB5	50V 100P	1	
C410	ECEA0JKA470B	6.3V 47UF	1	
C411	ECBT1H104ZF5	50V 0.1U	1	
C413,14	ECBT1H102KB5	50V 1000P	2	
C415	ECEA0JKA470B	6.3V 47UF	1	
C416,17	ECBT1H102KB5	50V 1000P	2	
C601	ECBT1E103ZF5	25V 0.01U	1	
C602	ECEA1HKA010B	50V 1U	1	
C603-05	ECBT1H101KB5	50V 100P	3	
C701	ECEA0JKA330I	6.3V 33U	1	
C702	ECUZNE104MBN	25V 0.1U	1	
C703	ECEA0JKA101I	6.3V 100U	1	
C704	ECUZNE104MBN	25V 0.1U	1	
C706	ECUE1H272KBN	50V 2700P	1	
C707	ECUV1E273KBN	25V 0.027U	1	
C710	ECUE1H151KCN	50V 150P	1	
C711,12	ECUWNE104ZFN	25V 0.1U	2	
C713	ECUZNE104MBN	25V 0.1U	1	
C714	ECEA0JKA101I	6.3V 100U	1	
C715	ECUE1H182KBN	50V 1800P	1	
C716	ECUE1H821KBN	50V 820P	1	
C717	ECUWNE104ZFN	25V 0.1U	1	
C718	ECUVNC224KBN	16V 0.22U	1	
C721,22	ECUE1H150JCN	50V 15P	2	
C723	ECEA1AKA221I	10V 220U	1	
C724	ECUZNE104MBN	25V 0.1U	1	
C725,26	ECUE1H102KBN	50V 1000P	2	
C727,28	ECEA1HPK010I	50V 1U	2	
C730	ECUWNE104ZFN	25V 0.1U	1	
C731,32	ECEA0JKA221I	6.3V 220U	2	
C733	ECUZNE104MBN	25V 0.1U	1	
C734	ECEA1AKA221I	10V 220U	1	
C735-37	ECUWNE104ZFN	25V 0.1U	3	
C738	ECUZNE104MBN	25V 0.1U	1	
C739	ECUE1H103KBN	50V 0.01U	1	
C742	ECUV1E273KBN	25V 0.027U	1	
C743	ECUWNE104ZFN	25V 0.1U	1	
C744	ECUV1E183KBN	25V 0.018U	1	
C745	ECUE1C473KBN	16V 0.047U	1	
C747	ECUE1H221KBN	50V 220P	1	
C749	ECUE1H222KBN	50V 2200P	1	
C750,51	ECUZNE104MBN	25V 0.1U	2	
C752	ECUE1H102KBN	50V 1000P	1	
C753	ECUV1H471KBN	50V 470P	1	
C754	ECUE1H471KBN	50V 470P	1	
C761,62	ECUE1H471KBN	50V 470P	2	

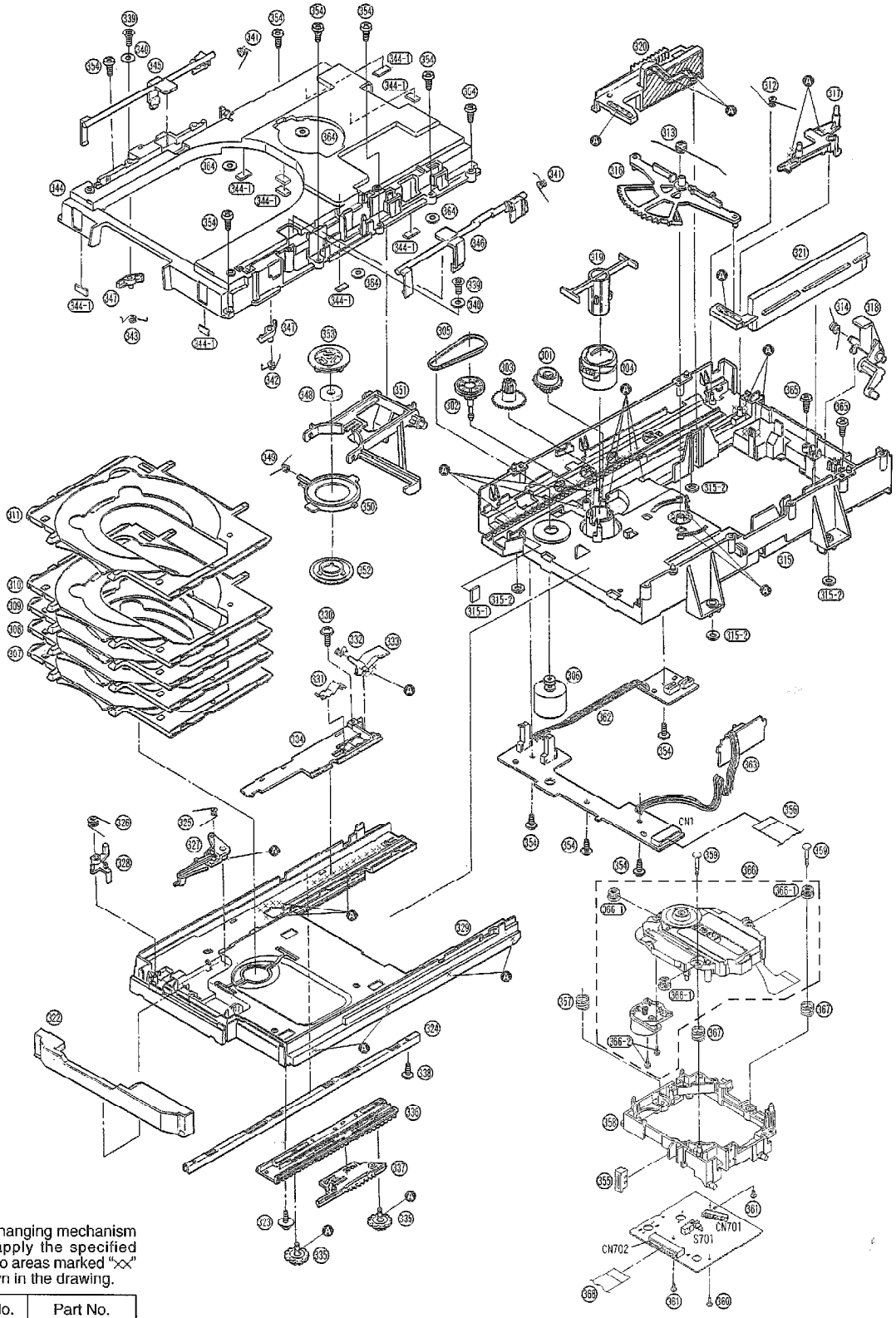
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
CN1	RJS1A6714	CONNECTOR(14P)	1	
CN401	RJS1A6814	CONNECTOR(14P)	1	
CN402	RJS1A6823	CONNECTOR(23P)	1	
CN701	RJU035T016-1	CONNECTOR(16P)	1	
CN702	RJS1A6723-1Q	CONNECTOR(23P)	1	
D3,D4	MA165	DIODE	2	
⚠ D5	MA4075MTA	DIODE	1	
D401-04	MA165	DIODE	4	
D601-05	LNJ301MPUJAD	LED	5	
D606	SPR505HDTT	LED	1	
D617	MA165	DIODE	1	
E1	SNE1004-2	EARTH TERMINAL	1	
IC1	BA6418N	IC	1	
⚠ IC1A	LM2940T5M	IC	1	
IC401	LC66538A4K17	IC	1	
IC601	NJU3713GTE1	IC	1	
IC701	AN8837SBE1	IC	1	
IC702	MN662746RPK1	IC	1	
IC703	AN8780NSBE2	IC	1	
JK401	RJT065K19	SYSTEM	1	
L1	BL02RN2R65T2	COIL	1	
L401	RLQA100JT-Y	COIL	1	
⚠ Q1	2SB1548PQAU	TRANSISTOR	1	
⚠ Q2	2SC3311A1QST	TRANSISTOR	1	
Q401	DTC114YSTP	TRANSISTOR	1	
Q402-04	2SC3311A1QST	TRANSISTOR	3	
Q405	2SA1309ATA	TRANSISTOR	1	
Q701	2SB709STX	TRANSISTOR	1	
Q702	DTC114YKA146	TRANSISTOR	1	
R2	ERDS2TJ471T	1/4W 470	1	
R3	ERDS2TJ223T	1/4W 22K	1	
R4	ERDS2FJ101	1/4W 100	1	
R5	ERDS2FJ102	1/4W 1K	1	
R401	ERDS2FJ105	1/4W 1M	1	
R402	ERDS2FJ102	1/4W 1K	1	
R403	ERDS2FJ104	1/4W 100K	1	
R404	ERDS2TJ471T	1/4W 470	1	
R405	ERDS2FJ101	1/4W 100	1	
R406	ERDS2TJ471T	1/4W 470	1	
R407	ERDS2TJ1R0T	1/4W 1	1	
R408-10	ERDS2TJ473T	1/4W 47K	3	
R412,13	ERDS2FJ103	1/4W 10K	2	
R414	ERDS2TJ471T	1/4W 470	1	
R415-22	ERDS2FJ103	1/4W 10K	8	
R423-25	ERDS2FJ101	1/4W 100	3	
R426	ERDS2FJ102	1/4W 1K	1	
R427	ERDS2TJ182T	1/4W 1.8K	1	
R432	ERDS2TJ123T	1/4W 12K	1	
R433	ERDS2FJ103	1/4W 10K	1	
R434,35	ERDS2FJ101	1/4W 100	2	
R436,37	ERDS2FJ472	1/4W 4.7K	2	
R438	ERDS2FJ102	1/4W 1K	1	
R439	ERDS2TJ223T	1/4W 22K	1	
R440	ERDS2TJ473T	1/4W 47K	1	
R441	ERDS2FJ472	1/4W 4.7K	1	
R442	ERDS2FJ103	1/4W 10K	1	
R444	ERDS2FJ472	1/4W 4.7K	1	
R445	ERDS2TJ473T	1/4W 47K	1	
R446	ERDS2FJ472	1/4W 4.7K	1	
R447,48	ERDS2TJ221T	1/4W 220	2	
R449,50	ERDS2TJ473T	1/4W 47K	2	
R452	ERDS2FJ103	1/4W 10K	1	
R453	ERDS2TJ473T	1/4W 47K	1	
R454	ERDS2FJ102	1/4W 1K	1	
R455,56	ERDS2TJ471T	1/4W 470	2	
R457	ERDS2TJ473T	1/4W 47K	1	
R458	ERDS2TJ182T	1/4W 1.8K	1	
R601	ERDS2FJ104	1/4W 100K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R602-04	ERDS2FJ101	1/4W 100	3	
R605-10	ERDS2TJ271T	1/4W 270	6	
R611	ERDS2TJ822T	1/4W 8.2K	1	
R612	ERDS2TJ562	1/4W 5.6K	1	
R613	ERDS2FJ272	1/4W 2.7K	1	
R614	ERDS2FJ222	1/4W 2.2K	1	
R615	ERDS2TJ223T	1/4W 22K	1	
R617	ERDS2TJ123T	1/4W 12K	1	
R618	ERDS2FJ682	1/4W 6.8K	1	
R619	ERDS2FJ472	1/4W 4.7K	1	
R620	ERDS2TJ332T	1/4W 3.3K	1	
R621	ERDS2FJ222	1/4W 2.2K	1	
R622	ERDS2TJ182T	1/4W 1.8K	1	
R623	ERDS2TJ152T	1/4W 1.5K	1	
R624	ERDS2TJ122T	1/4W 1.2K	1	
R701	ERJ6GEYJ4R7Z	1/10W 4.7	1	
R702	ERJ6GEYJ822V	1/10W 8.2K	1	
R704	ERJ6GEYJ102A	1/10W 1K	1	
R705	ERJ6GEYJ124Z	1/10W 120K	1	
R706	ERJ6GEYJ102A	1/10W 1K	1	
R707	ERJ6GEYJ474Z	1/10W 470K	1	
R708	ERJ6GEYJ154V	1/10W 150K	1	
R709	ERJ6GEYJ473Z	1/10W 47K	1	
R710	ERJ6GEYJ103V	1/10W 10K	1	
R711	ERJ6GEYJ104Z	1/10W 100K	1	
R712	ERJ6GEYJ151V	1/10W 150	1	
R715	ERJ6GEYJ122Z	1/10W 1.2K	1	
R717-20	ERJ6GEYJ102A	1/10W 1K	4	
R721	ERJ6GEYJ101Z	1/10W 100	1	
R723	ERJ6GEYJ272Z	1/10W 2.7K	1	
R724	ERJ6GEYJ333Z	1/10W 33K	1	
R725	ERJ6GEYJ122Z	1/10W 1.2K	1	
R727,28	ERJ6GEYJ682Z	1/10W 6.8K	2	
R729	ERJ6GEYJ562V	1/10W 5.6K	1	
R731	ERJ6GEYJ123Z	1/10W 12K	1	
R734-36	ERJ6GEYJ101Z	1/10W 100	3	
R738	ERJ6GEYJ223Z	1/10W 22K	1	
R741-43	ERJ6GEYJ562V	1/10W 5.6K	3	
R744	ERJ6GEYJ104Z	1/10W 100K	1	
R745	ERJ6GEYJ106V	1/10W 10M	1	
R748	ERJ6GEYJ272Z	1/10W 2.7K	1	
R749	ERJ6GEYJ682Z	1/10W 6.8K	1	
R752	ERJ8GEYJ220V	1/8W 22	1	
R770	ERJ6GEYJ224Z	1/10W 220K	1	
RJ701-09	ERJ6GEY0R00A	CHIP JUMPER	9	
RJ710	ERJ8GEY0R00A	CHIP JUMPER	1	
RJ721-28	ERJ6GEY0R00A	CHIP JUMPER	8	
RJ750	ERJ6GEY0R00A	CHIP JUMPER	1	
S1,S2	RSH1A005	SW	2	
S3-S5	RSH1A032-U	SW	3	
S601-15	EVQPTD05Q	SW	15	
S701	RSH1A043-U	SW	1	
SA1	SZZP1054C	TEST DISC	1	
SA2	RFKXPG671	GREASE	1	
TJ701,02	EYF8CU	TEST JUMPER	2	
X401	EFOEC4234T3	OSCILLATOR	1	
X701	RSXZ16M9M01T	OSCILLATOR	1	

■ Cabinet Parts Location



■ Loading Unit Parts Location



Note:
When changing mechanism parts, apply the specified grease to areas marked "××" as shown in the drawing.

Ref. No.	Part No.
Ⓐ	RFKXPG671

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